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Textured Coatings of America
Los Angeles, Los Angeles County, California
Site Inspection
Sampling and Analysis Plan

Final

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Region IX

Prepared by:
Weston Solutions, Inc.

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Site Inspection
Draft Sampling and Analysis Plan

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Table of Contents

Section **Page**

Appendices

List of Tables

Table

List of Figures

Figure

List of Acronyms

AOC	Analyte of Concern
AST	Aboveground Storage Tank
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response Compensation, and Liability Information System
CLP	Contract Laboratory Program
CLPAS	Contract Laboratory Program Analytical Services
CRDL	Contract Required Detection Limits
CRQL	CLP Contract Required Quantitation Limits
DQO	Data Quality Objective
DQI	Data Quality Indicator
EPA	United States Environmental Protection Agency
ERS	EPA Emergency Response Section
HRS	Hazard Ranking System
IDW	Investigation-Derived Wastes
LACFD	Los Angeles County Fire Department
LAFD	City of Los Angeles Fire Department
MCL	Maximum Contaminant Level
µg/kg	micrograms per kilogram
mg/kg	milligram per kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NPL	National Priority List
PCE	Tetrachloroethene
PID	Photoionizing Detector
PM	Project Manager
PPE	Personal Protective Equipment
PRG	Preliminary Remediation Goal
PVC	Polyvinyl Chloride
QA	Quality Assurance
QAO	Quality Assurance Office
QC	Quality Control
RPD	Relative Percent Difference
SAM	Site Assessment Manager
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act of 1986
SI	Site Inspection
SOP	Standard Operating Procedure
TCA	Trichloroethane
TCE	Trichloroethene
UST	Underground Storage Tank
VOC	Volatile Organic Compound

1.0 INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), Weston Solutions, Inc. (WESTON®) has been tasked to conduct a Hazard Ranking System (HRS) Site Inspection (SI) of the Textured Coatings of America (Textured Coatings) site located in Los Angeles, California. The HRS assesses the relative threat associated with actual or potential releases of hazardous substances to the environment, and has been adopted by the U. S. Environmental Protection Agency (EPA) to assist in setting priorities for further site evaluation and potential remedial action. The HRS is the primary method for determining a site's eligibility for placement on the National Priorities List (NPL). The NPL identifies sites where the EPA may conduct remedial actions.

This Sampling and Analysis Plan (SAP) describes the project and data use objectives, data collection rationale, quality assurance goals, and requirements for sampling and analysis activities. The SAP also defines the sampling and data collection methods that will be used for this project. The SAP is intended to accurately reflect the planned data-gathering activities for this site investigation; however, site conditions and additional EPA direction may warrant modifications. All significant changes will be documented in the final report.

WESTON has been tasked to gather and review existing available information regarding site conditions, identify and fill data gaps, and prepare HRS scoresheets and rationale for the site.

The specific field sampling and chemical analysis information pertaining to the site is addressed in this SAP, in accordance with the EPA documents *EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations* (QA/R-5), March 2001, *Guidance on Systematic Planning Using the Data Quality Objectives Process* (EPA QA/G-4), February 2006 and *Data Quality Objective Process for Superfund* (EPA 540/G-93/71), August 1993.

1.1 Project Organization

The following is a list of project personnel and their responsibilities (See also Table 1):

EPA Site Assessment Manager (SAM) - The EPA SAMs are Carl Brickner and Matt Mitguard. The SAMs are the primary decision makers for this investigation and are the primary contacts for the WESTON Project Manager.

WESTON Program Manager (PM) - The WESTON PM and Field Sampling QC Coordinator is Christina Marquis. Ms. Marquis is responsible for the overall performance of all tasks assigned to WESTON by the EPA. Ms. Marquis is authorized to approve Sampling Analysis Plans for Southern California sites conducted by WESTON's Chatsworth office to ensure project quality assurance goals are met.

WESTON Field Manager - The WESTON Project Field Manager is Ben Castellana. Dr. Castellana is responsible for preparing the SAP, working with the laboratories, implementing the sampling design, collecting, handling, documenting, and transporting samples, generating field documentation of sampling activities, and working with the WESTON QC Coordinator to ensure project quality assurance goals are met.

WESTON Data QA Manager – The WESTON Project Data QA Manager is Paul Swift. Dr. Swift is responsible for reviewing the data collection process and assessing the validated analytical data in the context of the overall project Data Quality Objectives.

Analytical Laboratory - The EPA Regional Sample Control Coordinator (RSCC) will arrange for laboratory services.

Data Validation – The EPA Quality Assurance Office (QAO) will arrange data validation for this investigation.

1.2 Distribution List

Copies of the final SAP will be distributed to the following persons and organizations:

- Matt Mitguard, EPA Region 9
- Carl Brickner, EPA Region 9
- Gail Jones, EPA QA Office
- Weston Solutions, Inc. files

1.3 Statement of the Specific Problem

Since 1974, the Textured Coatings site has operated as a paints and coatings manufacturing and distribution facility. Processes used onsite include the blending of talc, clay, resin, titanium, and calcium carbonates along with additives to produce paints and coatings (WESTON, 2002). A hazardous materials inventory compiled by the City of Los Angeles Fire Department (LAFD) listed the following substances as being present onsite during a March 2001 inspection: lead, cadmium, titanium dioxide, vinyl chloride, and chromium oxide. In addition, 1,1,1-trichloroethane (1,1,1-TCA) has been historically used on the site (LACFD, 2002).

The Textured Coatings site is located in an area of Los Angeles associated with an observed trichloroethene (TCE), tetrachloroethene (PCE), and chromium groundwater plume. Solvents have reportedly been used onsite; however it is unknown whether these included TCE and/or PCE. In addition, chromium oxide is used in onsite operations. The site is among several possible contributing sources for the plume.

2.0 BACKGROUND

2.1 Location and Description

The address for the Textured Coating site is 5950 Avalon Boulevard, Los Angeles, Los Angeles County, California. The geographic coordinates for the site are 33° 59' 10" North, 118° 15' 51" West (GoogleEarth, 2008). The location of the site is shown in Figure 1.

The site occupies an area that is approximately 2.23 acres in a mixed commercial, industrial, and residential area (LACA, 2008; GoogleEarth, 2008). The site is bordered to the west by Avalon Boulevard, to the south by 60th Street, and to the east and north by industrial properties (GoogleEarth, 2008).

The Textured Coatings site contains two roofed warehouses; one in the western portion of the property and one in the northeastern portion of the property; and a parking lot, located in the southeast portion of the property. The roofed area is approximately 57,000 square feet and the parking lot is approximately 115,000 square feet. The western roofed area is used for office space, manufacturing, and storing raw materials. The northeastern roofed area is used as a shipping warehouse. Directly north of the shipping warehouse is a small unroofed area in which drums of various materials are stored. The entire property is fenced and a majority of its surface is covered with pavement or buildings, except the northern property line where a thin strip of soil is exposed along the fence (WESTON, 2002).

Currently, there are five Aboveground Storage Tanks (ASTs), located in approximately the same location as four former Underground Storage Tanks (USTs). The four 8,000-gallon ASTs contain Plastex, AC 264, Mineral Spirits, and Alkyd Resin, respectively. The adjacent 5,000-gallon AST contains a water-based acrylic substance. All tanks have approximately 110 percent secondary containment. Prior to the installation of the ASTs in 1999, USTs were located onsite. The USTs were located directly underneath the location of the current ASTs (WESTON, 2002).

2.2 Operational History

The site has historically been occupied by several various types of businesses including a lumber and packing yard starting in 1932, and a bottleworks and wholesaler starting in 1942. Royal Metal Manufacturing Company manufactured coated furniture onsite from 1956 to 1974. Textured Coatings has occupied the site since 1974 (Cully, 1999).

Textured Coatings is a paints and coatings manufacturing and distribution facility. Processes used onsite include the blending of talc, clay, resin, titanium, and calcium carbonates along with additives to produce paints and coatings. The materials used in these operations include, but are not limited to, ethylene glycol, zinc oxide, and anhydrous ammonia (WESTON, 2002).

Operations performed onsite produce a negligible amount of hazardous waste. Due to the nature of the products manufactured, used water and solvents can be reincorporated and reworked back into the products that are produced. Approximately 220 gallons of hazardous waste are generated every 60 days. The U.S. Department of Transportation descriptions for these wastes

include waste paint and non-RCRA hazardous waste liquid (water-based paint). The waste is stored in 55-gallon drums that are stored on a special containment pallet and moved with a forklift. The waste material is picked up by Industrial Waste Utilization of Montclair, California and is fuel blended, recycled, or incinerated. No part of the waste generated onsite is disposed of in a landfill (WESTON, 2002).

2.3 Previous Investigations and Regulatory Involvement

In December 1988, the Los Angeles County Fire Department (LACFD) conducted an onsite inspection on the Textured Coatings property. The inspection report indicates an accidental discharge of 1,1,1-TCA occurred on the floor in the mixing process area. No other details were provided (LACFD, 1988).

On January 20, 1999, three 10,000-gallon USTs were removed from the southern portion of the Textured Coatings property. The tanks contained polybutene, mineral spirits, and alkyd resin, respectively. All tanks were of single-wall steel construction. Following the removal of the USTs, a total of ten soil samples were collected by Ami Adini & Associates, Inc. for analysis. Six grab samples were collected from depths of approximately two to three feet below each of the tanks= inverts, in native soil. The samples were designated as T-1A and T-1B for tank T-1, T-2A and T-2B for tank T-2, and T-3A and T-3B for tank T-3. Additionally, four grab samples were collected from the stockpiled soil that was excavated during the removal operation. The excavated soil was placed in two soil piles. It is unclear whether the piles were segregated for a specific reason. Two samples were collected from the northern soils pile and designated SP-1 and SP-2. Two samples were collected from the southern soils pile and designated SP-3 and SP-4. All soil samples were collected at depths of approximately one foot below the top of the soil piles (WESTON, 2002).

The ten samples collected from soil adjacent to the three USTs were analyzed for TPH as gasoline and diesel via EPA Method 8015 modified, volatiles (BTEX) via EPA Method 8020, and MTBE via EPA Method 8020. T-1B detected concentrations at 0.059 mg/kg benzene, 0.028 mg/kg toluene, 0.074 mg/kg ethylbenzene, 0.17 mg/kg total xylenes, and mg/kg 12.5 TPHg. T-2B had detected concentrations of 14.0 mg/kg ethylbenzene, 30.0 mg/kg total xylenes, and 1,280 mg/kg TPHg (STS, 1999). Unaltered petroleum products are excluded from consideration under CERCLA.

2.4 Geology/Hydrogeology

The Textured Coatings site is located in the Los Angeles Forebay Area, which is in the northern part of the Central Basin of Los Angeles County. The known water-bearing sediments extend to a depth of 1600 feet and include Recent alluvium, the Lakewood formation, and the San Pedro formation. Recent alluvium is primarily stream deposited gravel, sand, silt and clay. Geologic members found within the alluvial deposits include the Semiperched aquifer, Bellflower aquiclude, and Gaspur aquifer. The Lakewood formation includes an upper part which is primarily stream type alluviation with flood plain fine-grained sediments, and a lower portion comprised of gravels and coarse sands. The Lakewood formation consists of the Exposition aquifer and the Gage-Gardena aquifer. In some areas, portions of the Semiperched aquifer and

the Bellflower aquiclude are included. The San Pedro formation underlies most of the Coastal Plain of Los Angeles County. The formation is composed of sands with some beds of fine gravel, silty sand , and silt. The San Pedro formation contains the following aquifers, listed in downward succession: the Hollydale aquifer, the Jefferson aquifer, the Lynwood aquifer, the Silverado aquifer, and the Sunnyside aquifer (DWR, 2004).

The depth to groundwater beneath the site is approximately 100 feet below ground surface. The direction of groundwater flow has not been clearly defined, however it is estimated to be to the north based on data gathered from published investigations in a one-mile radius from the site. Geologic materials in the unsaturated zone between ground surface and the top of the aquifer are primarily fine sand and silt, and the net precipitation of the area is approximately 3 inches annually (DWR, 1961).

2.5 Waste Characteristics

Operations on the Textured Coatings site included the use of metals and solvents. The site is located in an area of Los Angeles associated with an observed TCE and PCE groundwater plume. Solvents have reportedly been used onsite; however it is unknown whether these included TCE and/or PCE. Soil and groundwater sampling is warranted due to site data gaps. Sources of potential VOC contamination include, but are not limited to, 1,1,1-TCA storage area.

2.6 HRS Pathways

There are at least 39 municipal drinking water wells within 4 miles of the Textured Coatings site. At least nine of these wells are known to be contaminated with VOCs and/or chromium. Groundwater in the area is believed to be at approximately 100 feet bgs. Census data indicate that 729,180 people live within four miles of the site. Endangered species living within four miles of the site include the Southern Tarplant (*centromadia parryi ssp. Australis*) and the Coulter's goldfields (*lasthenia glabrata ssp. Coulteri*) (EPA, 2008).

A majority of the site is paved. The site is fenced; however, there is evidence of site access in the form of trash and graffiti. There are no schools within 200 feet of the site. There are residences located to the west of Avalon Boulevard (GoogleEarth, 2008).

3.0 PROJECT OBJECTIVES

3.1 Project Task and Problem Definition

WESTON has been tasked to conduct sampling of soil and groundwater in the site vicinity to further the HRS process. To demonstrate the presence of hazardous substances in the source to groundwater, samples will be collected from soils in the vicinity of the former USTs and in hazardous substance storage areas and submitted for laboratory analysis of VOCs and metals. To establish an observed release to groundwater, groundwater samples will be collected and submitted for laboratory analysis of VOCs and metals.

3.2 Data Use Objectives

Data collected during this site investigation will be used to:

- Determine the concentrations of VOCs and metals in site soils to document the presence of hazardous substances in the source.
- Document the concentrations of VOCs and metals in groundwater to evaluate whether a release to groundwater has occurred and can be attributed to the site.
- Evaluate whether further HRS characterization of the site is necessary. If additional characterization of the site is indicated, an addendum will be made to this SAP that documents these findings and provides a design and procedures for additional site characterization. The SAP Addendum will be submitted to the QAO for approval.

3.3 Action Levels

In accordance with the HRS, the action levels to establish an observed release to groundwater and to establish an on-site source are concentrations that are significantly above background concentrations. "Significantly above background" is defined as three times the background concentration for all media. If the background concentration is below the analytical quantitation limit, then the default background level is the background sample quantitation limit; "significantly above background" for this scenario is defined as a detect in the media where the analyte was not detected in the background media. To establish background metals concentrations in the region, WESTON will collect eight surface grab samples from the surrounding residential neighborhoods under the L.A. Crank and Engine Rebuilder SAP, submitted concurrently. A background groundwater sample will be collected upgradient of the operations and hazardous storage areas on the Textured Coatings site.

Based on previous investigations discussed in Section 2.3, VOCs and metals are the constituents deemed most likely to be elevated above background levels.

3.4 Decision Rules

Decisions will be based primarily on data generated from this SAP. The decision rules are:

- If source materials (site soils) are found to be contaminated by VOCs or metals, then the presence of hazardous substances in the source will be documented and integrated into the site's HRS score.
- If groundwater samples are found to contain concentrations of VOCs or metals significantly above background concentrations, then a release to groundwater will be documented and integrated into the site=s HRS score.

3.5 Data Quality Objectives

3.5.1 Data Quality Objective (DQO) Process

The DQO process, as set forth in the EPA document, *Guidance for the Data Quality Objectives Process,* EPA QA/G-4, was followed to establish the data quality objectives for this project. An outline of the process and the outputs for this project are included in Appendix A.

3.5.2 DQO Data Categories

This investigation will involve the generation of definitive data for soil and groundwater (see Section 3.1). The specific requirements for this data category are detailed in Section 9. The data generated under this project will comply with the requirements for that data category as defined in *Data Quality Objective Process for Superfund*, EPA 540/G-93/71, September 1993. All definitive analytical methods employed for this project will be methods approved by the EPA.

3.5.3 Data Quality Indicators

Data quality indicator goals (DQIs) for this project were developed following guidelines in *EPA Guidance for Quality Assurance Project Plans,* EPA QA/G-5 Final. All sampling will be guided by procedures detailed in Section 6.2 and standard operating procedures (SOP) to ensure representativeness of sample results. Soil collected for sample analyses will be representative of the geologic and contaminant conditions at the sample location and depth. Samplers will also ensure representativeness by making sure that sample aliquots are of like material. Tables 2 and 3 document the DQIs for this project. As presented in these tables, the published reporting limits for the Method Reporting Limit (including the EPA Contract Laboratory Program (CLP) modified California Contract Required Quantitation Limits, or CRQLs) were determined to be appropriate for this project. The acceptable ranges for Accuracy (percent recovery for MS/MSD analysis) will fall between 75 and 125 percent for water samples and 65 and 135 percent for soil samples. The threshold of precision (Relative Percent Difference for MS/MSD and duplicate sample analysis) will be less than, or equal to, 35 percent for water samples, and 50 percent for soil samples. Data comparability will be optimized for the project by standardizing the sample collection and handling methods, as well as using the same sample preparation and analytical methods. Samples will be prepared and delivered to the laboratory under the same containment

and preservation conditions, and within the method holding time. The analytical method detection limits for each analyte of concern are lower than the PRGs for soils as shown in Tables 2 and 3. These action levels are only used as risk-based benchmarks for the purposes of validating the appropriateness of the method detection levels. The Industrial PRG is likely the most applicable action level for the site; the Residential PRG is presented for reference purposes only.

3.6 Sample and Data Management

Samples will be collected and logged on a chain-of-custody form as discussed in Section 8.5. Samples will be kept secure in the custody of the sampler at all times, who will assure that all preservation parameters are being followed. Samples will be transferred to the laboratory via a certified carrier in a properly custody-sealed container with chain-of-custody documentation. The Forms II Lite data management system will be used to create chain-of-custody documents. The laboratory should note any evidence of tampering upon receipt.

The completed laboratory data report will be submitted to the EPA QAO, who will contract the data validation. The EPA QAO, will provide the data validation reports to the EPA SAM. The EPA SAM will then provide the data reports to the WESTON PM. The data validation reports and laboratory data summary sheets will be included in the final report to be submitted to the EPA SAM. Before submittal, the final report will undergo a technical review to ensure that all data have been reported and discussed correctly.

3.7 Schedule of Sampling Activities

The work is expected to take five days to perform. The work is tentatively scheduled for the end of July 2009. Access to the property will be necessary one week prior in order to mark the boring locations and contact Underground Utility Services, as required by law.

3.8 Special Training Requirements/Certifications

There are no special training or certification requirements specific to this project. Training requirements relevant to WESTON's health and safety program comply with 29 CFR 1910.120. The Site-Specific Health and Safety Plan is presented in Appendix B.

4.0 SAMPLING RATIONALE

4.1 Sampling Locations and Rationale

The objectives of this investigation are to document the presence of an on-site hazardous substance source, and to document whether an observed release to groundwater has occurred and can be attributed to the Textured Coatings site.

WESTON has reviewed available site information to determine historic uses and identify hazardous substances that may be present on site. Based on the available site history, WESTON selected a sampling strategy to evaluate site contamination. Locations where hazardous materials were used and stored historically as well as locations of reported spills are well defined in various agency files. Samples will be collected at areas of suspected contamination, including the former UST area, the former drum storage area, and the former mixing area, where a spill of 1,1,1-TCA was documented. At this time, Weston has not yet conducted a site walk to determine the exact locations of these features. Before sampling, Weston will conduct a detailed site walk and interviews to establish the exact sampling locations. The borings will be advanced as close as possible to the site features discussed above. If necessary, the current site occupant will be requested to move equipment to improve accessibility.

A total of 7 borings, including 4 deep borings and 3 shallow borings, will be advanced for the Textured Coatings site. The shallow borings will be advanced using direct-push methodology to minimize the generation of soil cuttings and eliminate additional costs for disposal. Because groundwater depth is expected to be beyond the capability of the direct-push rig, the deeper borings will be advanced using a Hollow-Stem Auger (HSA) rig. Proposed groundwater and soil sample locations are illustrated in Figure 3. Exact sample locations will be documented by GPS (outdoor locations) or by measurements from site features (indoor samples). Detailed rationale for the sample locations are presented in the following subsections.

4.1.1 Groundwater Sampling

To establish whether a release to groundwater has occurred, groundwater samples will be collected in both background and downgradient locations relative to the site. The sampling locations have been selected to investigate the former USTs, the former drum storage area, and the former mixing process area where a 1,1,1-TCA spill occurred. Groundwater will be collected from each boring at the top of the shallow water table, estimated to be between 100 and 150 feet bgs.

Based on information provided by the DTSC, groundwater flow is assumed to be to the north. Therefore, sampling location TC-05, located upgradient of areas of suspected contamination, will provide the background groundwater sampling location.

Groundwater sample location TC-01 is located downgradient of the former mixing process area. Sample location TC-02 is located downgradient of the former UST area. Sample location TC-03 is located downgradient of the former drum storage area. All groundwater samples will be analyzed for VOCs and metals.

4.1.2 Soil Sampling

To establish a hazardous substance source at the Textured Coatings site, a total of 17 soil samples will be collected from 6 locations. Sample locations TC-01, TC-02 and TC-05 will be collected from the deep HSA borings drilled at these locations for groundwater samples. Three borings (TC-04, TC-06, and TC-07) will be advanced using direct push methodology at the locations identified in Figure 3. Borings TC-02 and TC-06 will be located in and adjacent to the former UST area. Boring TC-04 will be located in and adjacent to the former drum storage area. Boring TC-07 will be located in the former mixing process area. Boring TC-07 may require the use of a limited access direct-push rig, as it will be collected indoors.

To confirm that AOCs are present on the Textured Coatings site, soil samples will be collected from the first 18 inches of soil beneath the paved surface at each boring location. In addition, soil samples will be collected at 10- and 20-foot sample depths at each location. All soil samples will be analyzed for VOCs and metals.

To establish background metals concentrations in the region, WESTON will collect eight surface grab samples from the surrounding residential neighborhoods. Samples will be collected in the first eighteen inches of soil from the parkways (grassy area between the street and the sidewalks) in neighborhoods less than one mile from the area defined by Slauson Avenue to the north, Central Avenue to the east, Gage Avenue to the south, and Avalon Boulevard to the west. Approximate locations are identified in Figure 5 of the L.A. Crank and Engine Rebuilder SAP, submitted concurrently; the actual sample locations will be determined in the field based on the following criteria:

- There are no industrial sites, including gas stations, dry cleaners, etc. within 1,000 feet.
- Soil at the sampling location does not appear to be stained or otherwise contaminated with oils, metals or debris.
- Soil is geologically similar to soils in study are and/or does not appear to be imported fill.

Background soil sample designations are presented in Table 4 of the L.A. Crank and Engine Rebuilder SAP. These data will be used as the basis of Background soil comparison for all South Central SIs, provided that the results are statistically similar. WESTON and/or the EPA may conduct an analysis of any anomalous data to determine whether the concentrations represent "natural" conditions. The EPA will make the final decision regarding the ultimate use of these data, whether in whole or part.

4.2 Analytes of Concern (AOCs)

Based on the site history described in Section 2.3, AOCs at the site are VOCs and metals. The site is located in an area of Los Angeles associated with an observed TCE, PCE, and chromium groundwater plume. Therefore, these constituents are the main AOCs for this investigation. However, if any other VOCs or metals are detected during analysis, they will be evaluated as potential AOCs by comparison with their background concentrations.

5.0 REQUEST FOR ANALYSES

All laboratory services will be scheduled and arranged for by EPA Region 9. Samples will be analyzed through EPA's CLP and/or EPA Region 9 Laboratory. Sample containers, preservatives, holding times, and estimated number of field and QC samples are summarized in Tables 4 and 5.

As enumerated in Table 4, 17 soil samples will be collected at 6 locations. Two duplicate samples will be collected for a total of 19 soil samples. Additional soil will be collected at one sample location for use as a laboratory QC sample. Each soil sample will be analyzed for VOCs via EPA CLP Analytical Services (CLPAS) SOM01.2 or equivalent, and metals via EPA CLPAS ILM05.4 or equivalent.

As enumerated in Table 5, groundwater samples will be collected at 4 locations. One duplicate sample will be collected for a total of 5 groundwater samples. Additional sample volume collected at one location will be identified for use as a laboratory QC sample. Each groundwater sample will be analyzed for VOCs via EPA CLPAS SOM01.2 or equivalent and metals via EPA CLPAS ILM05.4 or equivalent.

One equipment blank will be collected per matrix for each day that equipment is decontaminated in the field. A total of up to 6 equipment blanks is expected. As shown in Table 5, equipment blanks will be analyzed for VOCs via EPA CLPAS SOM01.2 or equivalent and metals via EPA CLPAS ILM05.4or equivalent in the same manner as the groundwater samples.

To provide analytical quality control for the analytical program, the following measures will be utilized:

- All sample analysis will be conducted by a laboratory selected by EPA.
- Additional volume of sample will be collected for at least one sample per media per each analytical method, to be utilized for matrix spike/matrix spike duplicate analysis.
- A CLP-type data package will be required from the laboratory for all resultant data.
- Holding times will be strictly observed for each analyte type and medium; holding times for each analysis are presented in Tables 4 and 5.

6.0 METHODS AND PROCEDURES

6.1 Field Equipment

6.1.1 Sampling Equipment

The following equipment will be used to obtain environmental samples:

Equipment	Fabrication	Dedicated
Sampler Sleeves	Acetate	Yes
Direct-Push Casing	Steel	No
HSA Auger	Steel	No
VOC sampler	Plastic	Yes
Hand Auger Sleeve	Brass	No
Water Level Tape	Plastic/Stainless Steel	No
Bailer	Teflon	Yes
Tubing	Teflon	Yes
Gloves	Nitrile	Yes
Zip-lock bags	Plastic	Yes
Trowels	Plastic	Yes
Filters	Plastic	Yes

A subcontractor will operate the HSA, direct push, and sampling devices. Equipment maintenance will be the responsibility of the subcontracted companies using standard industry practices. All non-dedicated sampling equipment will be decontaminated between samples by washing with a low phosphate detergent solution, followed by two rinses with potable water.

6.1.2 Inspection/Acceptance Requirements for Supplies and Consumables

There are no project-specific inspection/acceptance criteria for supplies and consumables. It is standard operating procedure that: personnel will not use broken or defective materials, items will not be used past their expiration date, supplies and consumables will be checked against order and packing slips to verify the correct items were received, and the supplier will be notified of any missing or damaged items.

6.2 Sampling Procedures

6.2.1 Underground Utilities Clearance

All underground utilities will be located and identified by a geophysical survey team. If any subsurface utilities are suspected beneath proposed borings, the borings will be relocated in order to avoid the utilities. Underground Services Alert will be notified at least 72 hours before drilling commences.

6.2.2 Soil Sampling

Soil samples will be collected from up to three direct push locations and three HSA locations. Direct push location soil samples will be collected by advancing a boring to the desired sample depth using a direct push device. The sample will be collected into a dedicated, acetate sleeve by driving the sample tube through the specified interval and retrieving. A geologist will log the core, and aliquots will be extracted from the core for analysis. The three HSA borings will utilize an outer casing that seals the borehole and prevents cross-contamination during drilling. The boreholes will be drilled with a minimum 4-inch diameter casing.

Soil samples will be collected for lithologic description. During logging, the soil will be screened for emission of organic vapors using a photoionizing detector (PID); readings significantly above background will be recorded in the logbook and on the sample chain-of-custody for laboratory use. Three soil samples at depths of 18 inches bgs, 10 feet bgs, and 20 feet bgs will be retained for laboratory analysis from each boring, as described above.

The samples to be analyzed for VOCs will be collected first and obtained directly from the sampling tube, using dedicated Encore™ samplers. Each VOC sample will be collected by advancing the Encore™ collector into an undisturbed portion of the soil sample using a "T" bar until the sample size indicator is completely covered. The sealer cap will be locked onto the Encore™ sampler before the subsequent aliquot is collected. All VOC samples will utilize three Encore™ samplers. All three aliquots will be placed into a single Encore™ bag with instructions, placed in a dedicated zip lock bag and chilled immediately to 4°C by placing on ice in an insulated cooler before shipment to the laboratory.

After collection of the VOC samples, the remaining soil will be transferred from the sampling device into a sample-dedicated zip-lock bag and homogenized. Material in the bag will be transferred with a dedicated plastic trowel from the bag to the appropriate sample containers. Sample containers will be filled to the top taking care to prevent soil from remaining in the lid threads prior to being sealed to prevent potential contaminant migration to or from the sample. After sample containers are filled, they will be immediately sealed, chilled if appropriate, and processed for shipment to the laboratory.

The direct push borings will be backfilled with hydrated medium bentonite chips. HSA cuttings will be placed into drums and staged at the site pending characterization for disposal.

6.2.3 Groundwater Sampling

Groundwater samples will be collected from four locations. The groundwater borings will be drilled to a maximum of 150 feet bgs using a HSA drill rig. This method utilizes an outer casing that seals the borehole and prevents cross-contamination during drilling.

When groundwater is encountered in the borehole, an in-situ groundwater sample will be collected using a Hydropunch™ water sampling device, or equivalent. The Hydropunch™ is inserted into undisturbed soils at the base of the borehole. The outer portion of the Hydropunch™ is then retracted to expose a PVC screen in the water-bearing zone. A dedicated bailer is lowered into the screen for collection of an in-situ groundwater sample. Because groundwater samples collected with a Hydropunch™ are representative of in-situ groundwater conditions, samples may be collected immediately without purging or measurement of water quality parameters.

At each sampling location, all bottles designated for VOC analysis will be filled sequentially before bottles designated for metals analysis are filled. If a duplicate sample is to be collected at this location, all bottles designated for a particular analysis for both sample designations will be filled sequentially before bottles for another analysis are filled. In the filling sequence for duplicate samples, bottles with the two different sample designations will alternate. Groundwater samples will be transferred from the bailer directly into the appropriate sample containers with preservative, chilled, and processed for shipment to the laboratory. When transferring samples, care will be taken not to touch the bailer to the sample container.

Vials for VOC analysis will be filled first to minimize the effect of aeration on the water sample. Groundwater samples to be analyzed for VOCs will be collected by pouring the sample directly into 40-mL vials pre-preserved with hydrochloric acid (HCl). The vials will be immediately capped and inverted to check for air bubbles to ensure zero head space. If a bubble appears, the vial will be discarded and a new sample will be collected. Samples intended for metals analysis will also be collected in the appropriate sample bottles directly from the bailer. For filtered samples, the sample will be transferred through a 0.45-micron filter attached to dedicated Teflon tubing. When transferring samples, care will be taken not to touch the filter to the sample container. The samples will be preserved with nitric acid (HNO3) to a pH less than 2 for metals subsequent to sample collection. Prior to the container being capped, the pH will be tested by pouring a small amount of the sample into the container lid. The liquid will then be poured over the pH strip to ensure the correct pH. The excess liquid will be collected in a separate container not used for collecting samples or shipping to a laboratory.

Auger cuttings will be placed into a drum which will be labeled as to contents (e.g., "Soil Cuttings, Borings 1 through 3") and date and staged at the site pending characterization for disposal.

6.3 Decontamination Procedures

The decontamination procedures that will be followed are in accordance with approved procedures. Decontamination of sampling equipment must be conducted consistently to assure

the quality of samples collected. All non-dedicated equipment that comes into contact with potentially contaminated soil or water will be decontaminated. Disposable equipment intended for one-time use will not be decontaminated, but will be packaged for appropriate disposal. Decontamination will occur prior to and after each use of a piece of non-dedicated equipment. All non-dedicated sampling devices will be steam-cleaned or decontaminated according to EPA Region 9 recommended procedures.

The following, to be carried out in sequence, is an EPA Region 9 recommended procedure for the decontaminated of sampling equipment:

- Non-phosphate detergent and tap-water wash, using a brush if necessary
- Tap-water rinse
- Deionized/distilled water rinse
- Isopropanol or Methanol rinse
- Deionized/distilled water rinse (twice)

Equipment will be decontaminated in a predesignated area on pallets or plastic sheeting, and clean bulky equipment will be stored on plastic sheeting in uncontaminated areas. Cleaned small equipment will be stored in plastic bags. Materials to be stored more than a few hours will also be covered.

7.0 DISPOSAL OF INVESTIGATION - DERIVED WASTE

In the process of collecting environmental samples at this site, several different types of potentially contaminated investigation-derived wastes (IDW) will be generated, including the following:

- Used personal protective equipment (PPE);
- Disposable sampling equipment;
- Decontamination fluids; and
- Excess soil, including cuttings from soil borings.

The EPA's National Contingency Plan requires that management of IDW generated during site investigations comply with all relevant or appropriate requirements to the extent practicable. This sampling plan will follow the *Office of Emergency and Remedial Response (OERR) Directive* 9345.3-02 (May 1991) which provides the guidance for management of IDW during site investigations. Listed below are the procedures that will be followed for handling IDW. The procedures are flexible enough to allow the site investigation team to use its professional judgment on the proper method for the disposal of each type of IDW generated at each sampling location.

- Used PPE and disposable sampling equipment will be double-bagged in plastic trash bags and disposed of in a municipal refuse dumpster. These wastes are not considered hazardous and can be sent to a municipal landfill. Any PPE or dedicated equipment that is to be disposed of that can still be reused will be rendered inoperable before disposal.

- Decontamination fluids that will be generated in the sampling event will consist of dilute isopropanol/methanol, deionized water, residual contaminants, and water with non-phosphate detergent. The volume and concentration of the decontamination fluid will be sufficiently low to allow disposal at the site or sampling area. The decontamination fluids will be discharged to the ground.

- Soil cuttings generated during the subsurface sampling will be drummed and disposed of in an appropriate manner, pending VOC and metal analysis.

8.0 SAMPLE IDENTIFICATION, DOCUMENTATION AND SHIPMENT

8.1 Field Notes

8.1.1 Field Logbooks

Field logbooks will document where, when, how, and from whom any vital project information was obtained. Logbook entries will be completed and accurate enough to permit reconstruction of filed activities. The logbook is bound with consecutively numbered pages. Each page will be dated and the time of entry noted in military time. All entries will be legible, written in ink, and signed by the individual making the entries. Language will be factual, objective, and free of personal opinions. At a minimum, the following information will be recorded, if applicable, during the collection of each sample.

- Sampler's name(s)
- Date and time of sample collection
- Type of sample (e.g., groundwater)
- Type of sampling equipment used
- Field instrument readings and calibration readings for any equipment used, and equipment model(s) and serial number(s)
- Field observations and details related to analysis or integrity of samples (e.g., weather conditions, noticeable odors, colors, etc.)
- Sample preservation
- Lot numbers of the sample containers, sample identification numbers and any explanatory codes, and chain-of-custody form numbers
- Shipping arrangements (overnight air bill number)
- Name(s) of recipient laboratory(ies)

In addition to sampling information, the following specifics may also be recorded in the field logbook for each day of sampling:

- Team members and their responsibilities
- Time of arrival on site and time of site departure
- Other personnel on site
- Summary of any meetings or discussions with any potentially responsible parties, or representatives of any federal, state, or other regulatory agency
- Deviations from sampling plans or site safety plan procedures
- Changes in personnel and responsibilities, as well as reasons for the change
- Levels of safety protection
- Record of photographs

8.1.2 Photographs

Photographs will be taken at representative sampling locations and at other areas of interest on site. They will verify information entered in the field logbook. When a photograph is taken, the following information will be written on the logbook or will be recorded in the field photography log:

- Date, location
- Description of the subject photographed
- Name of person taking the photograph

8.2 Sample Nomenclature

A unique, identifiable name will be assigned to each sample. The prefix "TC" will be used to identify the Textured Coatings site. The location number will range from 1 to 7. Duplicate and blank samples will be assigned fictitious names. The depth of soil sample will follow the "S" descriptor. Example: the sample "TC-2-S-10" describes a soil sample collected at location 2 at a depth of 10 feet. Groundwater samples will be identified the same way, with the exception that the suffix GW will be substituted for the soil/sample depth notation (i.e., TC-1-GW indicates a groundwater sample and sample location 1). The EPA Regional Sample Control Coordinator may assign additional sample numbers. See Section 4 for specific nomenclature and location assignments.

8.3 Container, Preservation, and Holding Time Requirements

All sample containers used will have been delivered to WESTON in a pre-cleaned condition. Container, preservation, and holding time requirements are summarized in Tables 4 and 5.

8.4 Sample Labeling, Packaging and Shipping

All samples collected will be labeled in a clear and precise way for proper identification in the field and for tracking in the laboratory. Sample labels will be created using the Forms II Lite data management system. Sample labels will be affixed to the sample containers and secured with clear tape. Samples will have preassigned, identifiable and unique numbers in accordance with Section 8.2. The sample labels will contain the following information where appropriate:

- Sample number
- Sample location
- Date and time of collection
- Site name
- Analytical parameter and method of preservation
- CLP Case Number (if applicable)

Sample coolers will be retained in the custody of site personnel at all times or secured so as to deny access to anyone else. The procedures for shipping samples are as follows:

- The bottom of the cooler will be lined with bubble wrap to prevent breakage during shipment.
- Screw caps will be checked for tightness.
- Containers will have custody seals affixed so as to prevent opening of the container without breaking the seal.
- All glass sample containers will be wrapped in bubble wrap.
- All containers will be sealed in zip-lock plastic bags.

All samples will be placed in coolers with the appropriate chain-of-custody forms. The Forms II Lite data management system will be used to create all chain-of-custody forms. All forms will be enclosed in plastic bags and affixed to the underside of the cooler lid. Empty space in the cooler will be filled with bubble wrap or styrofoam peanuts to prevent movement and breakage during shipment. Each ice chest will be securely taped shut with strapping tape, and custody seals will be affixed to the front, right, and back of each cooler.

Samples will be shipped for immediate delivery to the contracted laboratory. The EPA Region IX Regional Sample Control Coordinator (Garrett Peterson (510) 412-2389) will be notified daily of the sample shipment schedule and will be provided with the following information:

- Sampling contractor's name
- The name of the site
- Case number
- Shipment date and expected delivery date
- Total number of samples by matrix, and relative level of contamination (i.e., low, medium, or high)
- Carrier, air bill number(s), and method of shipment (e.g., priority)
- Irregularities or anticipated problems associated with the samples
- Whether additional samples will be sent, if this is the last shipment

8.5 Chain of Custody Forms and QA/QC Summary Forms

A chain of custody form will be maintained for all samples to be submitted for analysis, from the time the sample is collected until its final deposition. Every transfer of custody must be noted and signed for; a copy of this record is kept by each individual who has signed. Corrections on sample paperwork will be made by drawing a single line through the mistake and initialing and dating the change. The correct information will be entered above, below, or after the mistake. When samples are not under the direct control of the individual responsible for them, they must be stored in a locked container sealed with a custody seal. The chain of custody must include the following:

- Sample identification numbers
- Site name
- Sample date
- Number and volume of sample containers
- Required analyses

- Signature and name of samplers
- Signature(s) of any individual(s) with control over samples
- Airbill number
- Note(s) indicating special holding times and/or detection limits

Traffic reports will be used to document sample collection and shipment to the laboratory for analysis. The Forms II Lite data management system will be used to generate all traffic reports and chains of custody. One copy will be completed and sent with the samples for each laboratory and each shipment. If multiple coolers are sent to a single laboratory on a single day, only one form will be completed. If all sample information cannot be entered in one form, then multiple forms will be used. One copy of the form will be sent to the EPA RSCC, another copy will be sent to Contract Laboratory Analytical Services Support, and one copy will accompany the samples to the laboratory. A photocopy of the original will be made for WESTON's master file. The document titled "*Instructions for Sample Shipping and Documentation*," will be taken to the field as a reference. This document is included in Appendix D.

A QA/QC summary form will be completed for each laboratory and each matrix of the sampling event. The sample number for all blanks, reference samples, laboratory QC samples (MS/MSDs) and duplicates will be documented on this form. This form is not sent to the laboratory. The original form will be sent to the EPA; a photocopy of the original will be made for WESTON's master file.

9.0 QUALITY ASSURANCE AND CONTROL (QA/QC)

9.1 Field Quality Control Samples

The QA/QC samples described in the following subsections, which are also listed in Tables 4 and 5, will be collected during this investigation.

9.1.1 Assessment of Field Contamination (Blanks)

9.1.1.1 Equipment Blanks

Equipment rinsate blanks will be collected to evaluate field sampling and decontamination procedures by pouring distilled water over the decontaminated sampling equipment. One equipment rinsate blank will be collected per day for each piece of sampling equipment that is decontaminated in the field. Equipment rinsate blanks will be obtained by passing water through or over the decontaminated sampling devices used that day. Equipment blanks will be analyzed for VOCs and metals (see Table 5).

The equipment blanks will be preserved, packaged, and sealed in the manner described for the groundwater samples in Section 6.2. A separate sample number will be assigned to each sample, and it will be submitted blind to the laboratory.

If any compound is detected in equipment blanks, then sample data will be considered acceptable without qualification only if the results are above five times the amount detected in the blank(s) for each respective analyte. If the analyte detected in the blank is a common laboratory contaminate, then the sample results for those analytes would be qualified unless the results are above ten times the amount detected in the blank(s). Sample results that are below five times (ten times for common laboratory contaminants) the amount detected in the blanks, additional evaluation will be require during data validation.

9.1.1.2 Temperature Blanks

For each cooler that is shipped or transported to an analytical laboratory, a 40-mL vial of deionized water will be included that is marked "temperature blank." This blank will be used by the sample custodian to check the temperature of samples upon receipt.

9.1.2 Assessment of Sample Variability (Field Duplicate or Co-located Samples)

Duplicate soil samples will be collected at the sample locations to be determined in the field. The selection criteria for collecting duplicate samples will be based on factors that include sample volume recovery, representative depth and suspected contamination in a source area soil sample.

A duplicate groundwater sample will be collected at the one sample location to be determined in the field. The selection criteria for collecting duplicate samples will be based on factors that

include sample volume recovery and suspected contamination in a downgradient groundwater sample.

Soil samples to be analyzed for metals will be homogenized in a sample-dedicated zip-lock bag. Homogenized material will then be transferred to 4 oz. glass jars. Soil samples for VOC analysis will not be homogenized. Equivalent Encore samples will be collected from the sample sleeve immediately after the collection of the original samples.

Duplicate samples will be preserved, packaged, and sealed in the same manner described for the groundwater samples in Section 6.2. A separate sample number will be assigned to each duplicate, and it will be submitted blind to the laboratory.

9.2 Background Samples

Background soil samples will be collected in an area that is not expected to be affected by onsite operations to differentiate between on-site and off-site contributions to contamination. Surface soil samples will be collected from area neighborhoods using the selection criteria and sampling methodologies described in Section 4.1.2 from areas shown in Figure 5 of the L.A. Crank and Engine Rebuilder SAP, submitted concurrently. Background groundwater samples indicated in Table 5 will be collected from the locations shown in Figure 3. Background samples will be submitted blind to the laboratory and analyzed by the methods indicated in Tables 4 and 5.

9.3 Laboratory Quality Control Samples

A laboratory QC sample is not an extra sample; rather, it is a sample that requires additional QC analyses.

Soil samples for laboratory QC purposes will be obtained by collecting one additional sample from a co-located location in the same way as the original samples. The additional sample will be assigned the same sample number as the original sample.

For groundwater samples, a double-volume groundwater sample will be collected at one assigned location to ensure that sufficient volume is collected for both routine sample analysis and additional laboratory QC analysis. Two sets of water sample containers are filled and all containers are labeled with a single sample number.

For this sampling event, the samples collected at the locations indicated in Tables 4 and 5 will be the designated laboratory QC samples. These locations were chosen because they are suspected to contain detectable levels of AOCs. The sample labels and chain-of-custody records for these samples will identify them as a laboratory QC samples. At a minimum, one sample per 20 samples, per matrix, will be designated as a laboratory QC sample.

9.4 Analytical and Data Package Requirements

It is required that all samples be analyzed in accordance with the methods listed in Tables 4 and 5. The laboratory is required to supply documentation to demonstrate that their data meet the requirements specified in the contract.

The data validation package shall include all original documentation generated in support of this project. In addition, the laboratory will provide original documentation to support that all requirements of the methods have been met. This includes, but is not limited to, sample tags, custody records, shipping information, sample preparation/extraction records, and instrument printouts such as mass spectra. Copies of information and documentation required in this document are acceptable. CLP methods will follow the contract required data package requirement.

9.5 Data Validation

Validation of analytical data generated by the CLP and contract laboratories for this investigation will be contracted by the EPA in accordance with the *EPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (EPA 540-R-99\008, 10/99), and EPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (EPA 540-R-04\001, 10/04)*. Tier 3 validation for 100% of the data will be required.

To meet requirements for categorization as definitive data, the following criteria will be evaluated:

- Holding times
- Blank contamination
- Initial and continuing calibration
- Detection limits
- Analyte identification and quantitation
- Matrix spike recoveries
- Performance evaluation samples when specified
- Analytical error determination
- Laboratory Control Samples.

Upon completion of validation, data will be classified as one of the following: acceptable for use without qualifications, acceptable for use with qualifications, or unacceptable for use.

9.6 Field Variances

As conditions in the field may vary, it may become necessary to implement minor modifications to this plan. When appropriate, the EPA SAM will be notified of the modifications and a verbal approval obtained before implementing the modifications. Modifications to the original plan will be documented in the final report.

9.7 Assessment of Project Activities

9.7.1 WESTON Assessment Activities

The following assessment activities will be performed by WESTON:

- All project deliverables (SAP, Data Summaries, Data Validation Reports, Site Inspection Report) will be peer-reviewed prior to release to the EPA. In time-critical situations, the peer review may be concurrent with the release of a draft document. Errors discovered in the peer review process will be reported by the reviewer to the originator of the document, who will be responsible for corrective action.
- The WESTON QA Officer will review project documentation (logbooks, chain of custody forms, etc.) to ensure the SAP was followed and that sampling activities were adequately documented. The QA Officer will document deficiencies and the Field Project Manager will be responsible for corrective actions. The QA Officer is also responsible for Review and assessment of the data for data quality issues for the project.
- The WESTON Project Manager is responsible for the review of data, and ensuring that sampling design approach and total error determination meet the DQOs for this project.

9.7.2 EPA Assessment Activities

EPA assessment activities, which can include surveillance, management system reviews, readiness reviews, technical system audits, performance evaluation, and audits and assessments of data quality, have not been formally identified to WESTON by the EPA at the time of completion of the SAP.

9.7.3 Project Status Reports to Management

It is standard procedure for the WESTON PM to report to the EPA SAM any issues, as they occur, that arise during the course of the project that could affect data quality, data use objectives, the project objectives, or project schedules.

9.7.4 Reconciliation of Data with DQOs

Assessment of data quality is an ongoing activity throughout all phases of a project. The following outlines the methods to be used by WESTON for evaluating the results obtained from the project.

- Review of the DQO outputs and the sampling design will be conducted by the WESTON QA Officer, and the EPA prior to sampling activities. The reviewer will submit comments to the WESTON PM for action, comment, or clarification. This process will be iterative.
- A preliminary data review will be conducted by WESTON. The purpose of this review is to look for problems or anomalies in the implementation of the sample collection and analysis procedures and to examine QC data for information to verify assumptions underlying the DQOs and the SAP. Anomalies may include changes in the Method

Detection Limits (MDLs) as a result of dilution, sampling, and/or matrix factors across the sample suite; such anomalies will be reported in writing to the SAM when they are confirmed.

- Data review will also include a comparison of analytical results, Method Detection Limits, and background concentrations in an effort to determine whether each result can be identified as "significantly above," or "significantly below" background, as defined in Section 3.3.

10.0 REFERENCES

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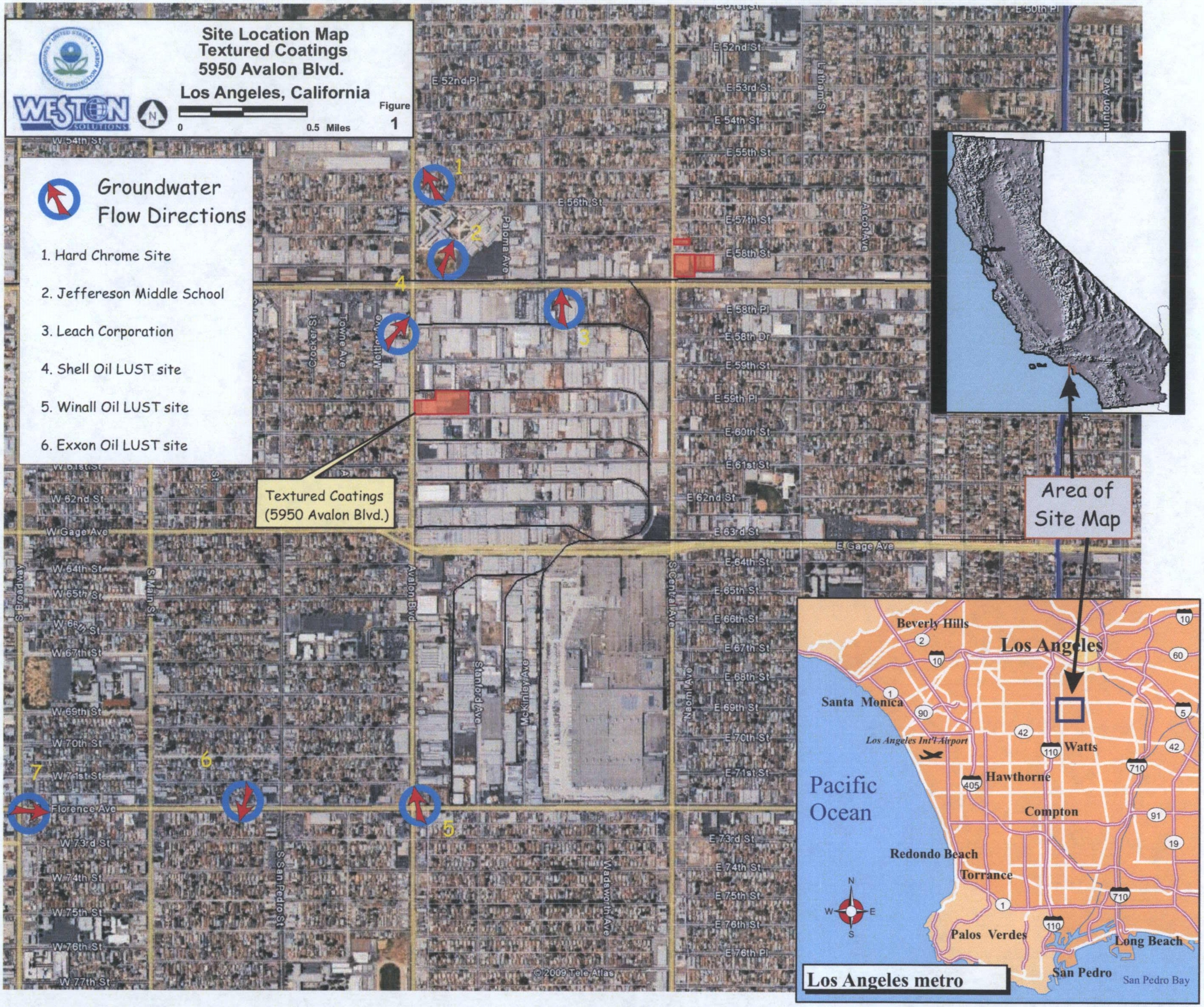
FIGURES



Site Location Map
Textured Coatings
5950 Avalon Blvd.
Los Angeles, California
0 0.5 Miles
Figure 1
WESTON SOLUTIONS
Groundwater Flow Directions
1. Hard Chrome Site
2. Jefferson Middle School
3. Leach Corporation
4. Shell Oil LUST site
5. Winall Oil LUST site
6. Exxon Oil LUST site
Textured Coatings (5950 Avalon Blvd.)
Area of Site Map
Los Angeles metro
Beverly Hills
Los Angeles
Santa Monica
Los Angeles Int'l Airport
Watts
Hawthorne
Compton
Pacific Ocean
Redondo Beach
Torrance
Palos Verdes
Long Beach
San Pedro
San Pedro Bay
W Gage Ave
E Gage Ave
Florence Ave
Avalon Blvd
S Central Ave
S Broadway
S Main St
S San Pedro St
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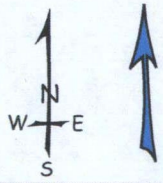
Weston Solutions, Incorporated
2903 Oakdale St. #320 Chatsworth CA 91311

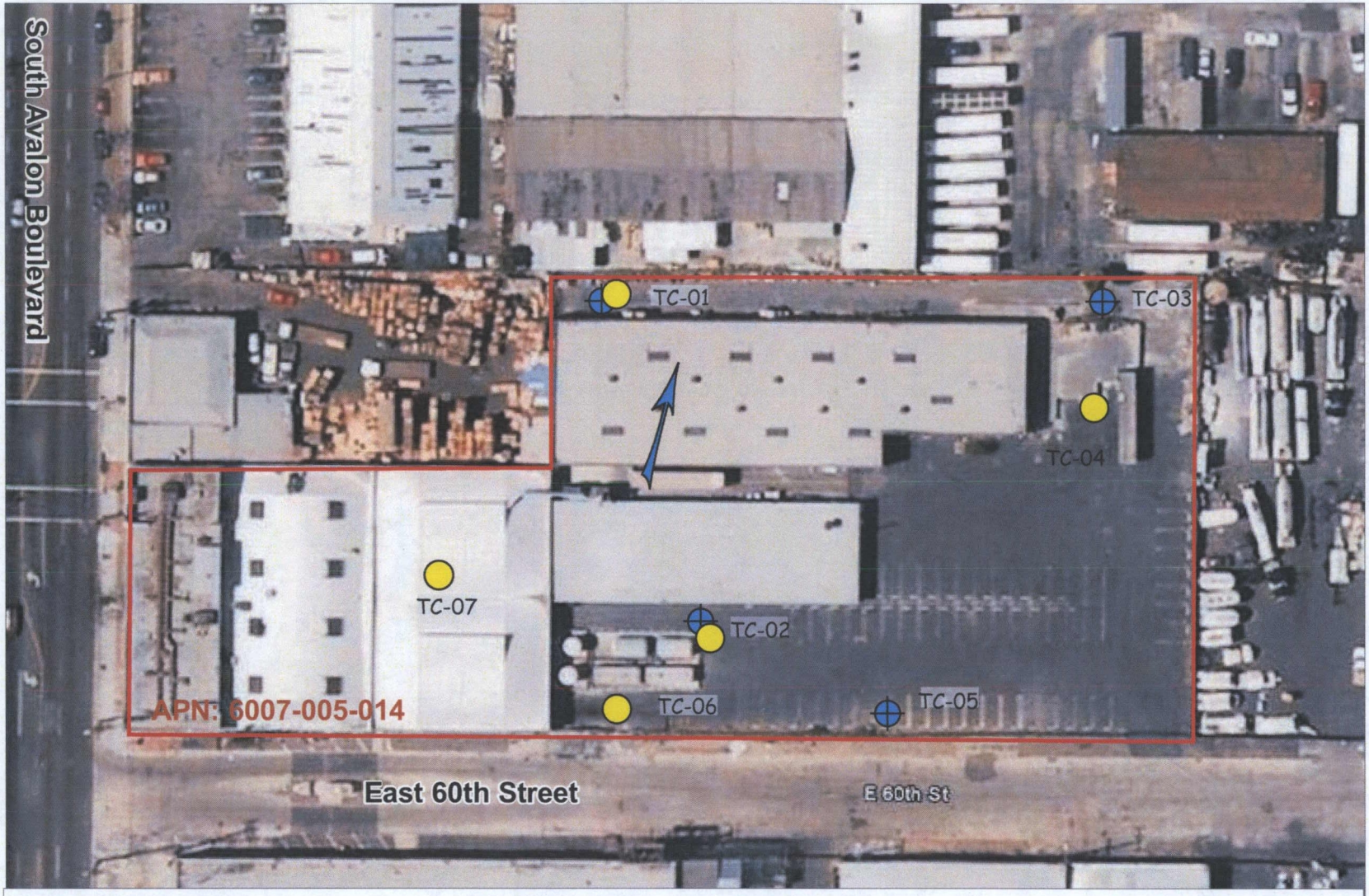
Scale

0 100 In Feet 200 300



Approximate Groundwater flow Direction

Figure 2:
Site Layout Map
Textured Coatings
South Central Discovery Project



Site Location

WESTON SOLUTIONS™

Weston Solutions, Incorporated
2903 Oakdale St. #320 Chatsworth CA 91311

N
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Scale
0 100 In Feet 200 300

Approximate Groundwater flow Direction

Shallow Soil Boring

Deep Boring Location

Figure 3:
Soil and Groundwater Sampling Locations
Textured Coatings
South Central Discovery Project

TABLES

Table 1: Organizational Chart

Title/Responsibility	Name	Phone Number
EPA Site Assessment Manager	Matt Mitguard	(415) 972-3096
EPA Site Assessment Manager	Carl Brickner	(415) 972-3814
EPA Quality Assurance Office	Eugenia McNaughton	(415)-972-3411
EPA Quality Assurance Office Reviewer	Gail Jones	(415)-972-3807
WESTON Project Manager and Quality Assurance Coordinator	Christina Marquis	(818) 350-7308
Weston Data QA Manager	Paul Swift	(206) 521-7625
WESTON Field Manager	Ben Castellana	(818) 371-5388
EPA Region IX Sample Control Coordinator	Garret Peterson	(510) 412-2389

Table 2 Inorganic Analyses and Action Levels

METHOD & ANALYTES	Method Reporting Limits		MCL	PRGr	PRGi
	Soil	Water	Water	Soil	Soil
ILM05.3/ILM05.4	mg/kg	ug/L	ug/L	mg/kg	mg/kg
Aluminum	20	--	-	77000	990000
Antimony	6	2	6	31	410
Arsenic	**1**	1	10	0.39	1.6
Arsenic CAL	**1**	1	-	0.062	0.25
Barium	20	10	2000	15000	190000
Beryllium	0.5	1	4	160	2000
Cadmium	0.5	1	5	70	810
Calcium	500	-	-	-	-
Chromium	1	2	100	280	1400
Cobalt	5	1	-	23	300
Copper	2.5	2	1,300*	3100	41000
Iron	10	-	-	55000	72000
Lead	1	1	15*	400	800
Lead CAL			-	150	-
Magnesium	500	-	-	-	-
Manganese	1.5	1	-	1800	23000
Mercury	0.1	-	2.000	7	28
Nickel	4	1	-	1600	20000
Potassium	500	-	-	-	-
Selenium	3.5	5	20	390	5100
Silver	1	1	-	390	5100
Sodium	500	-	-	-	-
Thallium	2.5	1	2	5	66
Vanadium	5	1	-	390	5200
Zinc	6	2	-	23000	310000

Notes:

Method Reporting Limits - are based on the standard Contract Laboratory Program Contract-Required Detection Limit or EPA Method, statement of work. MRLs in boldface are above the PRGs; background levels for arsenic will likely exceed the MRL, based on background studies in the Western US.

PRG = Preliminary Remediation Goals (EPA 2004) for Residential (PRGr) and Industrial (PRGi) soils.

CAL - Indicates California-modified PRGs

mg/kg = miligrams per kilogram

ug/L = miligrams per liter.

Accuracy for each analyte (Percent Recovery for MS/MSD) should fall between 75 and 125 % for water samples, and 65% and 135% for soil samples.

Precision (RPD for MS/MSD and duplicates) should be </= 35% for water samples, and </=50% for soil samples.

Percent Complete for the project must be >/= 90%.

Table 3: Organic Analysis - VOCs

COMPOUND	Method Reporting Limits			Action Levels		
				MCL	PRGr	PRGi
	Trace Water	Low Water	Soil	water	soil	soil
	(ug/L)	(ug/L)	mg/kg	ug/L	mg/kg	mg/kg
1,1,1-Trichloroethane	0.5	5	0.005	200	9000	39000
1,1,2,2-Tetrachloroethane	0.5	5	0.005	-	2	9.8
1,1,2-Trichloro-1,2,2-trifluoroethane	0.5	5	0.005	-	43000	180000
1,1,2-Trichloroethane	0.5	5	0.005	-	1.1	5.5
1,1-Dichloroethane	0.5	5	0.005	5	3.4	17
1,1-Dichloroethene	0.5	5	0.005	-	250	1100
1,2,3-Trichlorobenzene	0.5	5	0.005	-	-	-
1,2,4-Trichlorobenzene	0.5	5	0.005	-	87	400
1,2-Dibromo-3-chloropropane	**0.5**	5	0.005	2	0.0056	0.073
1,2-Dibromoethane	**0.5**	5	0.005	-	0.034	0.17
1,2-Dichlorobenzene	0.5	5	0.005	75	2000	10000
1,2-Dichloroethane	0.5	5	0.005	5	0.45	2.2
1,2-Dichloropropane	0.5	5	0.005	5	0.93	4.7
1,3-Dichlorobenzene	0.5	5	0.005	-	-	-
1,4-Dichlorobenzene	0.5	5	0.005	-	2.6	13
1,4-Dioxane	20	100	0.100	-	44	160
2-Butanone	5	10	0.010	-	28000	190000
2-Hexanone	5	10	0.010	-	-	-
4-Methyl-2-pentanone	5	10	0.010		5300	52000
Acetone	5	10	0.010	-	61000	610000
Benzene	0.5	5	0.005	5	1.1	5.6
Bromochloromethane	0.5	5	0.005	-	-	-
Bromodichloromethane	0.5	5	0.005	-	10	46
Bromoform	0.5	5	0.005	-	61	220
Bromomethane	0.5	5	0.005	-	7.9	35
Carbon disulfide	0.5	5	0.005	-	670	3000
Carbon tetrachloride	**0.5**	5	0.005	5	0.25	1.3
Chlorobenzene	0.5	5	0.005	100	310	1500
Chloroethane	0.5	5	0.005	-	15000	62000
Chloroform	**0.5**	5	0.005	-	0.3	1.5
Chloromethane	0.5	5	0.005	-	1.7	8.4
cis-1,2-Dichloroethene	0.5	5	0.005	-	780	10000
cis-1,3-Dichloropropene	0.5	5	0.005	-	-	-
Cyclohexane	0.5	5	0.005	-	310000	310000
Dibromochloromethane	0.5	5	0.005	-	5.8	21
Dichlorodifluoromethane	0.5	5	0.005	-	190	780
Ethylbenzene	0.5	5	0.005	700	5.7	29
Isopropylbenzene	0.5	5	0.005	-	-	-
m,p-Xylene	0.5	5	0.005	10	600	2600

Table 3: Organic Analysis - VOCs

COMPOUND	Method Reporting Limits			Action Levels		
	Trace Water	Low Water	Soil	MCL water	PRGr soil	PRGi soil
	(ug/L)	(ug/L)	mg/kg	ug/L	mg/kg	mg/kg
Methyl acetate	0.5	5	0.005	-	2300	31000
Methyl tert-butyl ether	0.5	5	0.005	-	39	190
Methylcyclohexane	0.5	5	0.005	-	-	-
Methylene chloride	0.5	5	0.005	-	11	54
o-Xylene	0.5	5	0.005	10	5300	23000
Styrene	0.5	5	0.005	100	6500	38000
Tetrachloroethene	0.5	5	0.005	5	0.57	2.7
Toluene	0.5	5	0.005	1000	5000	46000
trans-1,2-Dichloroethene	0.5	5	0.005	-	69	235
trans-1,3-Dichloropropene	0.5	5	0.005	-	-	-
Trichloroethylene	0.5	5	0.005	5	2.8	14
Trichlorofluoromethane	0.5	5	0.005	-	800	3400
Vinyl chloride	0.5	5	0.005	2	0.06	1.7

Notes:

Method Reporting Limits - are based on the standard Contract Laboratory Program Contract-Required Detection Limit or EPA Method,

PRG = Preliminary Remediation Goals (EPA 2008) for Residential (PRGr) and Industrial (PRGi) soils.

mg/kg = miligrams per kilogram

ug/L = miligrams per liter.

Accuracy for each analyte (Percent Recovery for MS/MSD) should fall between 75 and 125 % for water samples, and 65% and 135% for soil

Precision (RPD for MS/MSD and duplicates) should be </= 35% for water samples, and </=50% for soil samples.

Percent Complete for the project must be >/= 90%.

Table 4: Request for Analysis - Soil Matrix

ANALYSES REQUESTED				INORGANIC	ORGANIC
ANALYTICAL METHOD				CLPAS ILM05.2	CLPAS SOM01.1
ANALYTES				Metals	VOCs
PRESERVATIVES				Chill to 4±2°C	Chill to 4±2°C
ANALYTICAL HOLDING TIME(S)				180 days/28 days for Hg	48 hours to laboratory
CONTRACT HOLDING TIME(S)				Same	Analyze within 10 days
SAMPLE VOLUME				4 oz	5 mg*
SAMPLE CONTAINER				glass jar	EncoreTM
NUMBER OF CONTAINERS				1	3
Sample Number	Sample Location	Sample Depth (feet bgs)	Special Designation	Metals	VOCs
TC-1-SB-1.5	Mixing Process Area	1.5		1	1
TC-1-SB-10	Mixing Process Area	10		1	1
TC-1-SB-20	Mixing Process Area	20		1	1
TC-2-SB-1.5	UST Area	1.5		1	1
TC-2-SB-10	UST Area	10	Lab QC	2	2
TC-2-SB-20	UST Area	20		1	1
TC-4-SB-1.5	Drum Storage Area	1.5		1	1
TC-4-SB-10	Drum Storage Area	10		1	1
TC-4-SB-20	Drum Storage Area	20		1	1
TC-5-SB-10	Upgradient	10	Background	1	1
TC-5-SB-20	Upgradient	20	Background	1	1
TC-6-SB-1.5	UST Area	1.5		1	1
TC-6-SB-10	UST Area	10		1	1
TC-6-SB-20	UST Area	20		1	1
TC-7-SB-1.5	Mixing Process Area	1.5		1	1
TC-7-SB-10	Mixing Process Area	10		1	1
TC-7-SB-20	Mixing Process Area	20		1	1
TC-8-SB-1.5	TBD	1.5	Duplicate	1	1
TC-8-SB-10	TBD	10	Duplicate	1	1
Total Number of Soil Samples				19	19
Total Number of Sample Containers				20	60

* = Additional 4 oz jar is for associated moisture sample

Table 5: Request for Analysis - Water Matrix

ANALYSES REQUESTED				INORGANIC	ORGANIC
ANALYTICAL METHOD				CLPAS ILM05.2	CLPAS SOM01.1
ANALYTES				Metals	VOCs
PRESERVATIVES				Field Filter, Add HNO3 to pH <2 Chill to 4±2°C	Add 1:1 HCL to pH <2 4±2°C
ANALYTICAL HOLDING TIME(S)				180 days/28 days for Hg	14 days (7 days unpreserved water)
CONTRACT HOLDING TIME(S)				Same	Analyze within 10 days
SAMPLE VOLUME				1 L	40 mL
SAMPLE CONTAINER				Poly	glass vials
NUMBER OF CONTAINERS				1	3
Sample Number	Sample Location	Sample Depth (feet)	Special Designation	Metals	VOCs
TC-1-GW	Mixing Process Area	TBD		1	1
TC-2-GW	UST	TBD	Lab QC	2	2
TC-3-GW	Drum Storage Area	TBD		1	1
TC-5-GW	Upgradient	TBD	Background	1	1
TC-8-GW	TBD	TBD	Duplicate	1	1
TC-EB-1	EQ Blank	NA	Equipment	1	1
TC-EB-2	EQ Blank	NA	Equipment	1	1
TC-EB-3	EQ Blank	NA	Equipment	1	1
TC-EB-4	EQ Blank	NA	Equipment	1	1
TC-EB-5	EQ Blank	NA	Equipment	1	1
TC-EB-6	EQ Blank	NA	Equipment	1	1
Total Number of Water Samples				11	11
Total Number of Sample Containers				12	69

APPENDIX A:

DATA QUALITY OBJECTIVE WORKSHEET

Data Quality Objective Process Worksheet

Textured Coatings of America
HRS Objectives

1. State the Problem - Summarize the contamination problem that will require new environmental data, and identify the resources available to resolve the problem.

Planning Team:
Matt Mitguard, EPA Site Assessment Manager
Carl Brickner, EPA Site Assessment Manager
Benjamin Castellana, Weston Solutions, Inc.
Christina Marquis, Weston Solutions, Inc.

Matt Mitguard and Carl Brickner of the EPA are the primary decision makers of the scoping team for this assessment.

Problem: Since 1974, the Textured Coatings site has been used a paints and coatings manufacturing and distribution facility. Processes used onsite include the blending of talc, clay, resin, titanium, and calcium carbonates along with additives to produce paints and coatings (WESTON, 2002). A hazardous materials inventory compiled by the City of Los Angele Fire Department (LAFD) listed the following substances as being present onsite during a March 2001 inspection: lead, cadmium, titanium dioxide, vinyl chloride, and chromium oxide. In addition, 1,1,1-trichloroethane (1,1,1-TCA) has been historically used on the site (LACFD, 2002).

The Textured Coatings site is located in an area of Los Angeles associated with an observed trichloroethene (TCE), tetrachloroethene (PCE), and chromium groundwater plume. Solvents have reportedly been used onsite; however it is unknown whether these included TCE and/or PCE. In addition, chromium oxide is used in onsite operations. The site is among several possible contributing sources for the plume.

Available Resources:
Use of EPA CLP, Region 9, or private laboratories. All work and reporting should be completed by September 30, 2009. The EPA Quality Assurance Office will provide data validation.

2. Identify the Decision - Identify the decision that requires new environmental data to address the contamination problem.

Principal Study Questions:
- Can the presence of hazardous substances in the source be documented?
- Can a release to groundwater be established?

Define the alternative actions that could result from the resolution of the principal study question:

a) The site could be added to the National Priorities List through the HRS process;
a) No further EPA Superfund action could occur at the site.

Decision Statement: If site soils are found to be contaminated by VOCs and/or metals, then the presence of hazardous substances in the source will be documented. If groundwater is found to be contaminated by VOCs and/or metals, then a release to groundwater will be documented.

3. Identify Inputs to the Decision - Identify the information needed to support the decision, and specify which inputs require new environmental data.

Information required to resolve the decision statement: Definitive laboratory analysis of VOCs and metals in site soils and groundwater.

Source(s) for information: Data sources for the HRS assessment will be limited to this sampling event. Existing data produced by other investigations will not meet HRS comparability requirements.

Information needed to establish action levels: The action levels for soil and groundwater are, as dictated by the HRS, concentrations elevated above the background levels from a comparable background location located outside of the area potentially influenced by the site. For most analytes of concern, significantly above background is defined as three times above the background concentration. Therefore, comparable background samples will be collected from soil and groundwater to establish action levels.

Confirm that measurement methods exist to provide data:
VOCs via EPA CLPAS SOM01.1 or equivalent, and metals via EPA CLPAS ILM05.2 or equivalent.

4. Define the Study Boundaries - Specify the spatial and temporal aspects of the environmental media that the data must represent to support the decision.

Specific characteristics that define population being studied: Concentrations of VOCs and metals in site soils and groundwater.

Spatial boundary of decision statement: Site soils and background soils, upgradient groundwater and downgradient groundwater.

Temporal boundary of decision statement: The data will represent the conditions of site contaminants impacting soil and potentially groundwater in the foreseeable future. For the HRS objectives, all data will be compared to background samples collected as part of the same sampling event to minimize any temporal effects on the data. Data will be useable for comparison to health based action levels based on risk from long term exposure.

When to collect samples: No practical constraints on source samples.

Practical constraints on data collection: Site access will be required from EPA.

5. Develop a Decision Rule - Develop logical Aif...then@ statements that define the conditions that would cause the decision maker to choose among alternative actions.

Statistical parameter that characterizes a population: Each analytical result, not a statistical parameter such as mean concentration, will be evaluated against the action levels.

Specify the action level(s) for the study: The action levels for source areas and groundwater are, as dictated by the HRS, concentrations elevated above the background levels from a comparable background location located outside of the area potentially influenced by the site. For most analytes of concern, significantly above background is defined as three times above the background concentration.

Decision Rules:

- If source materials (site soils) are found to be contaminated by VOCs and/or metals, then the presence of hazardous substances in the source will be documented and integrated into the site=s HRS score.
- If groundwater beneath the site is found to be contaminated by VOCs and/or metals, then a release of hazardous substances from the site to groundwater will be documented and integrated into the site's HRS score.

6. Specify the Limits on Decision Errors - Specify the decision makers acceptable limits on decision errors, which are used to establish performance goals for limiting uncertainty in the data.

Use of biased sampling points precludes statistical determination of limits on decision errors. Measurement error, rather than sampling error, is deemed to be the primary factor affecting any decision error. Validated, definitive data will be required to limit measurement error. Sampling error will be limited to the extent practicable by following approved EPA methods and applicable SOPs. Sampling error and tolerable limits cannot be quantified.

7. Optimize the Design for Obtaining Data - Identify the most resource-effective sampling and analysis design for generating data that are expected to satisfy the DQOs.

The goal of this sampling event is to document the presence of hazardous substances in the source. Site soils will be sampled to satisfy this goal. In addition, groundwater will be sampled to document a release of hazardous substances to groundwater beneath the site.

APPENDIX B:

SITE SPECIFIC HEALTH AND SAFETY PLAN

Site Health and Safety Plan (HASP)-Form 1

Prepared by: Amanda K.C. Reilly	**W.O. Number:** **12767.063.479.1860** **Date:** 5/2/2009
Project Identification Office: Sherman Oaks Site Name: South Central Discoveries Client: USACE/USEPA Work Location Address: 5728 South Central, Los Angeles, CA	**Site History:** The EPA is conducting several SIs concurrently. Sites under investigation are manufacturers and platers, current and former, who may have used TCE, PCE, and/or hexavalent chromium. Soil and groundwater sampling will be conducted to determine whether these sites are a threat to human health and/or the environment.

Scope of Work:
Investigate the presence of potentially impacted soil and groundwater due to operations that have occurred on the Textured Coatings of America (Textured Coatings) site.

☐ Sites visit only; site HASP not necessary. List personnel here and sign off below:

Regulatory Status:

Site regulatory status:

CERCLA/SARA	**RCRA**	**Other Federal Agency**
☐ U.S. EPA	☐ U.S. EPA	☐ DOE
☐ State	☐ State	☐ USACE
☐ NPL Site	**NRC**	☐ Air Force
☐ OSHA	☐ 10 CFR 20	☐ _____

☐ Hazard Communication (Req'd See Attachment D)
☐ 1910 ☐ 1926 ☐ State

☐ Safety Officer Manual (Required to be On-Site)
Based on the Hazard Assessment and Regulatory Status, determine the Standard HASP(s) applicable to this project. Indicate below which Standard HASP will be used and append the appropriate pages of this form along with the Standard Plan.

☐ Stack Test	☐ _____
☐ Air Emissions	☐ _____
☐ Asbestos	☐ _____
☐ Industrial Hygiene	☐ _____
☐ _____	☐ _____

Review and Approval Documentation:

Reviewed by:
SO/DSM/CHS _____ Date: _____
Name (Print) Signature

Other _____ Date: _____
Name (Print) Signature

Approved by:
Field Manager Ben Castellana _____ Date: _____
Name (Print) Signature

Hazard Assessment and Equipment Selection:

In accordance with WESTON's Personal Protective Equipment Program and 29 CFR 1910.132, at the site prior to personnel beginning work, the SHSC and/or the Site Manager have evaluated conditions and verified that the personal protective equipment selection outlined within this HASP is appropriate for the hazards known or expected to exist. (Refer to Safety Officer Manual Section 2, Personal Protection Program, for guidance.)

☐ SHSC ☐ Site Manager Date: _____
Name (Print) Signature

Project start date: 05/04/09 End date: 05/08/09 ***Approximate dates***		Amendment date(s) By: 1. 2. 3. 4.

Weston Representatives-Form 2

Organization/Branch	Name/Title	Address	Telephone
Weston/001594	Christina Marquis Project Manager	9301 Oakdale Ave. Suite 320 Chatsworth, CA 91311	(818) 464-7063
Weston /001594	Ben Castellana Field Manager	9301 Oakdale Ave. Suite 320 Chatsworth, CA 91311	(818) 371-5388

Roles and Responsibilities: Christina Marquis - Project Manager
Ben Castellana – Field Manager, Client Contact

WESTON SUBCONTRACTORS

Organization/Branch	Name/Title	Address	Telephone
TBD			

Roles and Responsibilities:

SITE-SPECIFIC HEALTH AND SAFETY PERSONNEL

The Site Health and Safety Coordinator (SHSC) for activities to be conducted at this site is: Ben Castellana

The SHSC has total responsibility for ensuring that the provisions of this Site HASP are adequate and implemented in the field.

Changing field conditions may require decisions to be made concerning adequate protection programs. Therefore, the personnel assigned as SHSCs are experienced and meet the additional training requirements specified by OSHA in 29 CFR 1910.120.

Qualifications: Passed current Weston SHSC training.
First Aid/ CPR Certified
40 Hour HAZWOPER OSHA training and 8 Hour refresher – current

Designated alternates include:

Revised 2/1998

Health and Safety Evaluation-Form 3

Hazard Assessment

Background Review: ☒ Complete ☐ Partial If partial why?

Activities Covered Under This Plan:

No.	Task/Subtask	Description	Schedule
1	Collect surface and subsurface soil samples.	Collect subsurface soil samples using a direct push rig and/or hand auger.	TBD
2	Collect groundwater samples	Install temporary groundwater monitoring wells using a direct push rig and collect groundwater samples.	TBD

Types of Hazards:

1 Numbers refer to one of the following hazard evaluation forms. Complete hazard evaluation forms for each appropriate hazard class.

Physiochemical 1

- ☐ Flammable
- ☐ Explosive
- ☐ Corrosive
- ☐ Reactive
- ☐ O_2 Rich
- ☐ O_2 Deficient

Chemically Toxic 1

- ☒ Inhalation ☐ Carcinogen
- ☒ Ingestion ☐ Mutagen
- ☒ Contact ☐ Teratogen
- ☐ Absorption
- ☐ OSHA 1910.1000 Substance (Air Contaminants)
- ☐ OSHA Specific Hazard Substance Standard (Refer to following page for listing)

Radiation 3

Ionizing:

- ☐ Internal exposure
- ☐ External exposure

Non-ionizing:

- ☒ UV ☐ IR
- ☐ RF ☐ MicroW
- ☐ Laser

Biological 2

- ☐ Etiological Agent
- ☒ Other (plant, insect, animal)

- ☐ **Physical Hazards 4**
- ☐ Construction Activities

Source/Location of Contaminants and Hazardous Substances:

Directly Related to Tasks

- ☐ Air
- ☐ Other Surface
- ☒ Groundwater
- ☒ Soil
- ☐ Surface Water
- ☐ Sanitary Wastewater
- ☐ Process Wastewater
- ☐ Other _____

Indirectly Related to Tasks — Nearby Process(es) That Could Affect Team Members:

- ☐ Client Facility/WESTON Work Location
- ☐ Nearby Non-Client Facility

Describe:

- ☐ Have activities (task[s]) been coordinated with facility? Yes

Revised 02/1998

Health and Safety Evaluation-Chemical Hazards of Concern-Form 4

☐ N/A

Chemical Contaminants of Concern

Provide the data requested for chemical contaminants on HASP Form 25 or attach data sheets from an acceptable source such as NIOSH pocket guide, condensed chemical dictionary, ACGIH TLV booklet, etc. List chemicals and concentrations below and locate data sheets in Attachment B of this HASP.

☒ N/A

Identify hazardous materials used or on-site and attach Material Safety Data Sheets (MSDSs) for all reagent type chemicals, solutions, or other identified materials that in normal use in performing tasks related to this project could produce hazardous substances. Ensure that all subcontractors and other parties working nearby are informed of the presence of these chemicals and the location of the MSDSs. Obtain from subcontractors and other parties, lists of the hazardous materials they use or have on-site and identify location of the MSDSs here. List chemicals and quantities below and locate MSDSs in Attachment B of this HASP.

Chemical Name	Concentration (if known)	Chemical Name	Quantity
VOCs	NA		
Metals	NA		

OSHA-SPECIFIC HAZARDOUS SUBSTANCES

The following substances may require specific medical, training, or monitoring based on concentration or evaluation of risk. See the appropriate citation listed under 29 CFR 1910 or 1926 for additional information.

☐ 1910.1001 Asbestos	☐ 1910.1002 Coal tar pitch volatiles	☐ 1910.1003 4-Nitrobiphenyl, etc.	☐ 1910.1004 alpha-Naphthylamine
☐ 1910.1005 [Reserved]	☐ 1910.1006 Methyl chloromethyl ether	☐ 1910.1007 3,3'-Dichlorobenzidine (and its salts)	☐ 1910.1008 bis-Chloromethyl ether
☐ 1910.1009 beta-Naphthylamine	☐ 1910.1010 Benzidine	☐ 1910.1011 4-Aminodiphenyl	☐ 1910.1012 Ethyleneimine
☐ 1910.1013 beta-Propiolactone	☐ 1910.1014 2-Acetylaminofluorene	☐ 1910.1015 4-Dimethylaminoazobenzene	☐ 1910.1016 N-Nitrosodimethylamine
☐ 1910.1017 Vinyl chloride	☐ 1910.1018 Inorganic arsenic	☒ 1910.1025 Lead (Att. FLD# 46)	☒ 1910.1027 Cadmium
☐ 1910.1028 Benzene	☐ 1910.1029 Coke oven emissions	☐ 1910.1043 Cotton dust	☐ 1910.1044 1,2-Dibromo-3-chloropropane
☐ 1910.1045 Acrylonitrile	☐ 1910.1047 Ethylene oxide	☐ 1910.1048 Formaldehyde	☐ 1910.1050 Methylenedianiline
☐ 1910.1051 1,3 Butadiene	☐ 1910.1052 Methylene chloride		

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Health and Safety Evaluation-2 Biological Hazards of Concern-Form 5

☐ **Poisonous Plants** (FLD 43)

Location/Task No(s).:
Source: ☐ Known ☐ Suspect
Route of Exposure: ☐ Inhalation ☐ Ingestion ☐ Contact ☐ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☐ No
Immunization required: ☐ Yes ☐ No

☒ **Insects** (FLD 43 see Attachment B)

Location/Task No(s).:
Source: ☐ Known ☒ Suspect
Route of Exposure: ☐ Inhalation ☐ Ingestion ☒ Contact ☒ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☒ No
Immunization required: ☐ Yes ☒ No

☐ **Snakes, Reptiles** (FLD 43)

Location/Task No(s).:
Source: ☐ Known ☐ Suspect
Route of Exposure: ☐ Inhalation ☐ Ingestion ☐ Contact ☐ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☐ No
Immunization required: ☐ Yes ☐ No

☒ **Animals** (FLD 43 see Attachment B)

Location/Task No(s).:
Source: ☐ Known ☒ Suspect
Route of Exposure: ☐ Inhalation ☐ Ingestion ☒ Contact ☐ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☒ No
Immunization required: ☐ Yes ☒ No

FLD 43 — WESTON Biohazard Field Operating Procedures: Att. OP ☐

☐ **Sewage**

Location/Task No(s).:
Source: ☐ Known ☐ Suspect
Route of Exposure: ☐ Inhalation ☐ Ingestion ☐ Contact ☐ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☐ No
Immunization required: ☐ Yes ☐ No

Tetanus Vaccination within Past 10 yrs: ☐ Yes ☐ No

☐ **Etiologic Agents (List)**

Location/Task No(s).:
Source: ☐ Known ☐ Suspect
Route of Exposure: ☐ Inhalation ☐ Ingestion ☐ Contact ☐ Direct Penetration

Team Member(s) Allergic: ☐ Yes ☐ No
Immunization required: ☐ Yes ☐ No

FLD 44 — WESTON Bloodborne Pathogens Exposure Control Plan – First Aid Procedures: Att. OP ☐

FLD 45 — WESTON Bloodborne Pathogens Exposure Control Plan – Working with Infectious Waste: Att. OP ☐

HEALTH AND SAFETY EVALUATION — 3 RADIATION HAZARDS OF CONCERN

NONIONIZING RADIATION

Task No.	Type of Nonionizing Radiation	Source On-Site	TLV/PEL	Wavelength Range	Control Measures	Monitoring Instrument
1, 2	Ultraviolet	Sun				
	Infrared	NA				
	Radio Frequency	NA				
	Microwave	NA				
	Laser	NA				

IONIZING RADIATION

Task No.	Radionuclide	Major Radiations	Radioactive Half-Life (Years)	DAC (µCii/mL)			Surface Contamination Limit	Monitoring Instrument
				D	W	Y		

HEALTH AND SAFETY EVALUATION — 4 PHYSICAL HAZARDS OF CONCERN

See Attachment B

Phy. Haz. Cond.	Physical Hazard	Attach OP	WESTON OP Titles
Loud noise	Hearing loss/disruption of communication	☒	FLD01 - Noise Protection
Inclement weather	Rain/humidity/cold/ice/snow/lightning	☐	FLD02 - Inclement Weather
Steam heat stress	Burns/displaced oxygen/wet working surfaces	☐	FLD03 - Hot Process - Steam
Heat stress	Burns/hot surfaces/low pressure steam	☐	FLD04 - Hot Process - LT3
Ambient heat stress	Heat rash/cramps/exhaustion/heat stroke	☐	FLD05 - Heat Stress Prevention/Monitoring
Cold stress	Hypothermia/frostbite	☐	FLD06 - Cold Stress
Cold/wet	Trench/paddy/immersion foot/edema	☐	FLD07 - Wet Feet
Confined spaces	Falls/burns/drowning/engulfment/electrocution	☐	FLD08 - Confined Space Entry
Explosive vapors	Thermal burns/impaction/dismemberment	☐	FLD09 - Hot Work
Improper lifting	Back strain/abdomen/arm/leg muscle/joint injury	☐	FLD10 - Manual Lifting/Handling Heavy Objects
Uneven surfaces	Vehicle accidents/slips/trips/falls	☐	FLD11 - Rough Terrain
Poor housekeeping	Slips/trips/falls/punctures/cuts/fires	☒	FLD12 - Housekeeping
Structural integrity	Crushing/overhead hazards/compromised floors	☐	FLD13 - Structural Integrity
Hostile persons	Bodily injury	☐	FLD14 - Site Security
Remote area	Slips/trips/falls/back strain/communication	☐	FLD15 - Remote Area
Improper cyl. handling	Mechanical injury/fire/explosion/suffocation	☐	FLD16 - Pressure Systems - Compressed Gases
Water hazards	Poor visibility/entanglement/drowning/cold stress	☐	FLD17 - Diving
Water hazards	Drowning/heat/cold stress/hypothermia/falls	☐	FLD18 - Operation and Use of Boats
Water hazards	Drowning/frostbite/hypothermia/falls/electrocution	☐	FLD19 - Working Over Water
Vehicle hazards	Struck by vehicle/collision	☒	FLD20 - Traffic
Explosions	Explosion/fire/thermal burns	☐	FLD21 - Explosives
Moving mechanical parts	Crushing/pinch points/overhead hazards/electrocution	☒	FLD22 - Heavy Equipment Operation
Moving mech. parts	Overhead hazards/electrocution	☐	FLD23 - Cranes/Lifting Equipment Operation
Working at elevation	Overhead hazards/falls/electrocution	☐	FLD24 - Aerial Lifts/Manlifts
Working at elevation	Overhead hazards/falls/electrocution	☐	FLD25 - Working at Elevation
Working at elevation	Overhead hazards/falls/electrocution/slips	☐	FLD26 - Ladders
Working at elevation	Slips/trips/falls/overhead hazards	☐	FLD27 - Scaffolding
Trench cave-in	Crushing/falling/overhead hazards/suffocation	☐	FLD28 - Excavating/Trenching
Improper material handling	Back injury/crushing from load shifts	☐	FLD29 - Materials Handling
Physiochemical	Explosions/fires from oxidizing, flam./corr. material	☐	FLD30 - Hazardous Materials Use/Storage
Physiochemical	Fire and explosion	☐	FLD31 - Fire Prevention/Response Plan Required
Physiochemical	Fire	☐	FLD32 - Fire Extinguishers Required
Structural integrity	Overhead/electrocution/slips/trips/falls/fire	☐	FLD33 - Demolition
Electrical	Electrocution/shock/thermal burns	☒	FLD34 - Utilities
Electrical	Electrocution/shock/thermal burns	☐	FLD35 - Electrical Safety
Burns/fires	Heat stress/fires/burns	☐	FLD36 - Welding/Cutting/Burning
Impact/thermal	Thermal burns/high pressure impaction/heat stress	☐	FLD37 - High Pressure Washers
Impaction/electrical	Smashing body parts/pinching/cuts/electrocution	☒	FLD38 - Hand and Power Tools
Poor visibility	Slips/trips/falls	☐	FLD39 - Illumination
Fire/explosion	Burns/impaction	☐	FLD40 - Storage Tank Removal/Decommissioning
Communications	Disruption of communications	☐	FLD41 - Std. Hand/Emergency Signals
Energy/release	Unexpected release of energy	☐	FLD42 - Lockout/Tagout
Drilling hazards	Electrocution/overhead hazards/pinch points	☒	2.5 - Drilling Safety Guide

TASK-BY-TASK RISK ASSESSMENT
(Complete One Sheet for Each Task)

TASK DESCRIPTION

Task 1: Collect surface and subsurface soil samples.

EQUIPMENT REQUIRED/USED
(Be specific, e.g., hand tools, heavy equipment, instruments, PPE)

Hand tools such as hand auger, trowel, or shovel and stainless steel bowls and spoons. A truck mounted, hydraulically powered push-probe will be used to collect the subsurface soil samples. Weston personnel will wear modified Level D PPE.

POTENTIAL HAZARDS/RISKS

Chemical

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Onsite soil may be impacted with hazardous substances. Weston personnel will wear appropriate PPE to protect against contact with contaminated media.

Physical

☒ Hazard Present Risk Level: ☐ H ☒ M ☐ L

What justifies risk level?

Use of hand tools and physical activity, potential overhead hazards near the probe/drilling rig(s). Sample locations may be located adjacent to roadways; Weston personnel will use appropriate measures to direct traffic away from work area.

Biological

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Contact with animals such as insects. Weston personnel will review proper reaction and evacuation practices.

RADIOLOGICAL

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Site is located in an area that can be subjected to high temperature during the summer months. Weston personnel will take appropriate measures to reduce the amount of time in the sun if needed.

LEVELS OF PROTECTION/JUSTIFICATION

Modified Level D: Nitrile gloves, leather gloves, safety glasses, steel toe boots, hardhat, cotton coveralls, and/or sunscreen. Modified Level D provides adequate protection from chemical, physical, and biological hazards associated with this task.

SAFETY PROCEDURES REQUIRED AND/OR FIELD OPS UTILIZED

FLD01—Noise Protection; FLD05 - Heat Stress Prevention/Monitoring; FLD12—Housekeeping; FLD20—Traffic; FLD22—Heavy Equipment Operation; FLD34—Utilities; FLD38 - Hand and Power Tools; 2.5 - Drilling Safety Guide

TASK-BY-TASK RISK ASSESSMENT
(Complete One Sheet for Each Task)

TASK DESCRIPTION

Task 2: Install temporary groundwater monitoring wells and collect groundwater samples.

EQUIPMENT REQUIRED/USED
(Be specific, e.g., hand tools, heavy equipment, instruments, PPE)

A truck mounted, hydraulically powered push-probe will be used to install the groundwater monitoring wells. Weston personnel will wear modified Level D PPE.

POTENTIAL HAZARDS/RISKS

Chemical

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Onsite soil may be impacted with hazardous substances. Weston personnel will wear appropriate PPE to protect against contact with contaminated media.

Physical

☒ Hazard Present Risk Level: ☐ H ☒ M ☐ L

What justifies risk level?

Use of hand tools and physical activity, potential potential overhead hazards near the probe/drilling rig(s). Sample locations may be located adjacent to roadways; Weston personnel will use appropriate measures to direct traffic away from work area.

Biological

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Contact with animals such as insects. Weston personnel will review proper reaction and evacuation practices.

RADIOLOGICAL

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Site is located in an area that can be subjected to high temperature during the summer months. Weston personnel will take appropriate measures to reduce the amount of time in the sun if needed.

LEVELS OF PROTECTION/JUSTIFICATION

Modified Level D: Nitrile gloves, leather gloves, safety glasses, steel toe boots, hardhat, cotton coveralls, and/or sunscreen. Modified Level D provides adequate protection from chemical, physical, and biological hazards associated with this task.

SAFETY PROCEDURES REQUIRED AND/OR FIELD OPS UTILIZED

FLD01—Noise Protection; FLD05 - Heat Stress Prevention/Monitoring; FLD12—Housekeeping; FLD20--Traffic; FLD22—Heavy Equipment Operation; FLD34—Utilities; FLD38 - Hand and Power Tools; 2.5 - Drilling Safety Guide

PERSONNEL PROTECTION PLAN

Engineering Controls
Describe Engineering Controls used as part of Personnel Protection Plan:

Task(s)

Administrative Controls
Describe Administrative Controls used as part of Personnel Protection Plan:

Task(s)

Personal Protective Equipment
Action Levels for Changing Levels of Protection. Refer to HASP Form 13, Site Air Monitoring Program—Action Levels. Define Action Levels for up or down grade for each task:

Task(s)

1, 2 Level D Modified, including nitrile gloves, cotton coveralls, steel toe leather boots, and eye protection to be worn while collecting samples.

DESCRIPTION OF LEVELS OF PROTECTION

Level C		Modified Level D	
Task(s):		**Task(s): 1, 2**	
☐ Head		☒ Head	Hard hat
☐ Eye and Face		☒ Eye	Safety glasses
☐ Hearing		☒ Hearing	Ear protection
☐ Arms and Legs Only		☐ Flotation	
☐ Appropriate Work Uniform		☒ Appropriate Work Uniform	cotton coveralls, and/or raingear
☐ Hand - Gloves		☐ Apron	
☐ Foot - Safety Boots		☒ Hand - Gloves	
☐ Fall Protection		☒ Gloves	Nitrile while collecting samples
☐ Flotation		☒ Gloves	Leather gloves
☐ Respiratory		☒ Foot - Safety Boots	Steel toe boots
		☐ Over Boots	

SITE OR PROJECT HAZARD MONITORING PROGRAM

Air Monitoring Instruments

Instrument Selection and Initial Check Record

Reporting Format: ☐ Field Notebook ☒ Field Data Sheets* ☐ Air Monitoring Log ☐ Trip Report ☐ Other

Instrument	Task No.(s)	Number Required	Number Received	Checked Upon Receipt	Comment	Initials
☐ CGI				☐		
☐ O_2				☐		
☐ CGI/O_2				☐		
☐ CGI/O_2/tox-PPM, H_2S,H_2S/CO				☐		
☐ RAD				☐		
☐ GM (Pancake)				☐		
☐ NaI (Micro R)				☐		
☐ ZnS (Alpha Scintillator)				☐		
☐ Other _____				☐		
☒ PID	1, 2			☐		
☐ HNu 10.2				☐		
☐ HNu 11.7				☐		
☐ Photovac, TMA				☐		
☒ OVM	1, 2			☐		
☐ Other _____				☐		
☐ FID				☐		
☐ Fox 128				☐		

☐ Heath, AID, Other				☐		
☐ RAM, Mini-RAM, Other _____				☐		
☐ Monitox				☐		
Specify: _____				☐		
☐ Personal Sampling				☐		
Specify: _____				☐		
☐ Bio-Aerosol Monitor				☐		
☐ Pump - MSA, Dräeger, Sensidyne				☐		
☐ Tubes/type: Benzene Dräeger				☐		
☐ Tubes/type: _____				☐		
☐ Other _____				☐		

*Refer to Attachment E.

SITE OR PROJECT HAZARD MONITORING PROGRAM								
Air Monitoring Instruments Calibration Record								
Instrument, Mfg., Model, Equip. ID No.	**Date**	**Time**	**Calib. Material**	**Calib. Method Mfg.'s**	**Other**	**Initial Setting and Reading**	**Final Setting and Reading**	**Calibrator's Initials**

SITE AIR MONITORING PROGRAM

Action Levels

These Action Levels, if not defined by regulation, are some percent (usually 50%) of the applicable PEL/TLV/REL. That number must also be adjusted to account for instrument response factors.

	Tasks	Action Level		Action
☐ **Explosive atmosphere**		Ambient Air Concentration	Confined Space Concentration	
		<10% LEL	0 to 1% LEL	Work may continue. Consider toxicity potential.
		10 to 25% LEL	1 to 10% LEL	Work may continue. Increase monitoring frequency.
		>25% LEL	>10% LEL	Work must stop. Ventilate area before returning.
☐ **Oxygen**		Ambient Air Concentration	Confined Space Concentration	
		<19.5% O_2	<19.5% O_2	Leave area. Re-enter only with self-contained breathing apparatus.
		19.5% to 25% O_2	19.5% to 23.5% O_2	Work may continue. Investigate changes from 21%.
		>25% O_2	>23.5% O_2	Work must stop. Ventilate area before returning.
☐ **Radiation**		< 3 times background		Continue work.
		3 times background to < 1 mR/hour		Radiation above background levels (normally 0.01-0.02 mR/hr) signifies possible radiation source(s) present. Continue investigation with caution. Perform thorough monitoring. Consult with a Health Physicist.
		A radiation badge will be used to document exposure.		

		➢ 1 mrem/hour A radiation badge will be used to document exposure.	Potential radiation hazard. Evacuate site. Continue investigation only upon the advice of Health Physicist.
☒ **Organic gases and vapors**	1, 2	Total Organic Vapor exposure of 10 units for the PID will require the field personnel to relocate upwind of sampling location.	Sampling will not occur in an enclosed location so periodic monitoring will occur during sampling. If 10 ppm action level is observed within breathing zone with the PID then field personnel to relocate upwind of sampling location.
☐ **Inorganic gases, vapors, and particulates**			

CONTINGENCIES

Emergency Contacts and Phone Numbers

Agency	Contact	Phone Number
Local Medical Emergency Facility (LMF)	Community Hospital	(323) 583-1931
WESTON Medical Emergency Contact	EMR - Dr. Elyane Theriault	1-800-229-3674
WESTON Health and Safety	Corporate Health and Safety	(610) 701-3000
Fire Department	911	911
Police Department	911	911
On-Site Coordinator- SHSC	Ben Castellana	(818) 371-5388
Client Site Contact		
Site Telephone		
Site Contact	Ben Castellana	(818) 371-5388

Local Medical Emergency Facility(s)

Name of Hospital: Community Hospital

Address: 2623 E. Slauson Avenue, Huntington Park CA 90255		**Phone No.:** (323) 583-1931
Name of Contact:		**Phone No.:**
Type of Service: ☐ Physical trauma only ☐ Chemical exposure only ☒ Physical trauma and chemical exposure ☒ Available 24 hours	**Route to Hospital (written detail):** 1: Start out going North on Avalon Blvd. 2: Turn RIGHT on E. Slauson Ave.	**Travel time from site:** 5 minutes **Distance to hospital:** 2.56 miles **Name/no. of 24-hr ambulance service:** Dispatch / 911

Secondary or Specialty Service Provider

Name of Hospital: California Hospital Medical Center

Address: 1401 S. Grand Avenue, Los Angeles CA 90015	**Phone No.:** (213) 748-2411
Name of Contact:	**Phone No.:**

Type of Service:	**Route to Hospital (written detail):**	**Travel time from site:**
☐ Physical trauma only ☐ Chemical exposure only ☒ Physical trauma and chemical exposure ☒ Available 24 hours	1: Start out going North on Avalon Blvd. 2: Turn LEFT on E. Slauson Ave. 3: Get on 110 North 4. Take 10 West exit, and exit on LEFT to Pico 5. Go straight onto Cherry 6. Turn RIGHT onto W. Pico Blvd. 7. Turn RIGHT onto S. Grand Ave.	10 minutes **Distance to hospital:** 5.59 miles **Name/no. of 24-hr ambulance service:** Dispatch / 911

Figure 1. Route to Community Hospital, Huntington Park (see attached map).

Figure 2. Route to California Hospital Medical Center, Los Angeles (see attached map).

Figure 1—Route to Hospital (Map)

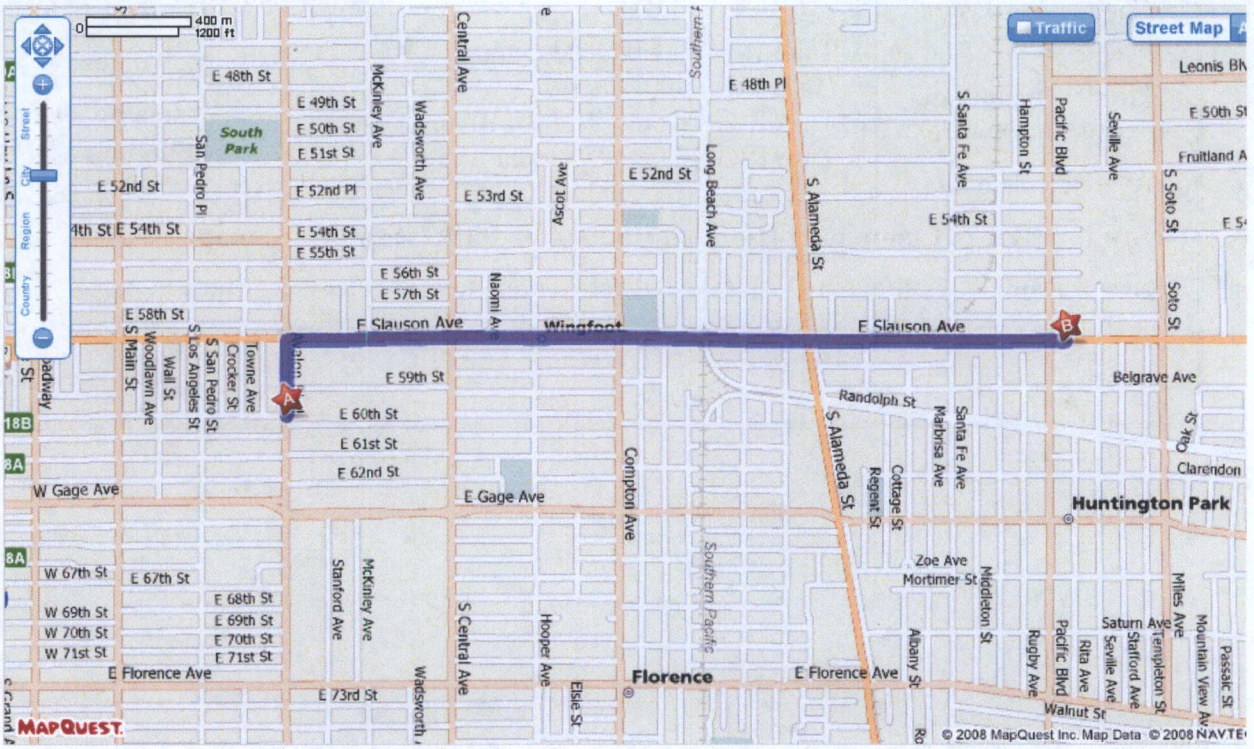
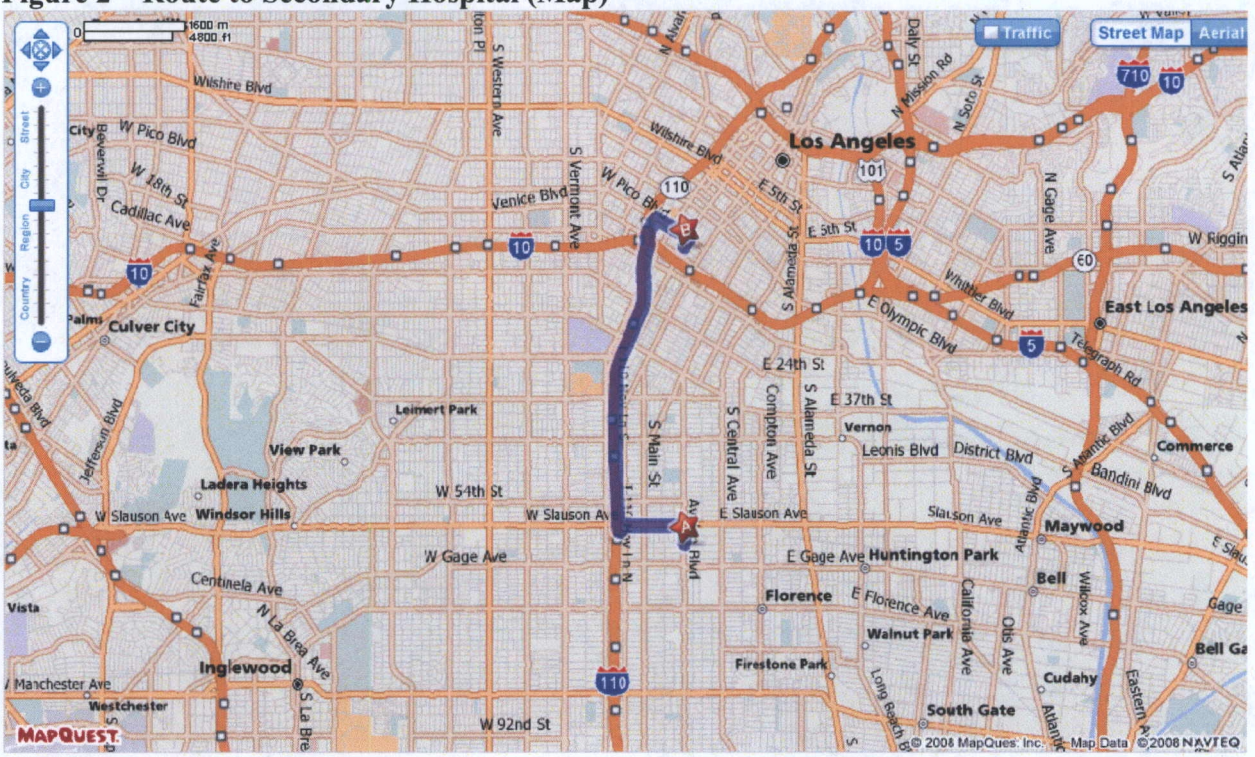


Figure 2—Route to Secondary Hospital (Map)



CONTINGENCIES

Response Plans

Medical - General Provide first aid, if trained; assess and determine need for further medical assistance. Transport or arrange for transport after appropriate decontamination.	First Aid Kit: Yes (including BBP kit)	Type Standard	Location Vehicle	Special First-Aid Procedures: Cyanides on-site ☐ Yes ☒ No If yes, contact LMF. Do they have antidote kit? ☐ Yes ☐ No
	Eyewash required ☐ Yes ☒ No	Type standard	Location Vehicle	**HF** on-site ☐ Yes ☒ No If yes, need neutralizing ointment for first-aid kit. Contact LMF.
	Shower required ☐ Yes ☒ No	Type	Location	

Plan for Response to Spill/Release		**Plan for Response to Fire/Explosion**		**Fire Extinguishers**
In the event of a spill or release, ensure safety, assess situation, and perform containment and control measures, as appropriate.	a. Cleanup per MSDSs if small; or sound alarm, call for assistance, notify Emergency Coordinator b. Evacuate to pre-determined safe place c. Account for personnel d. Determine if team can respond safely e. Mobilize per Site Spill Response Plan	In the event of a fire or explosion, ensure personal safety, assess situation, and perform containment and control measures, as appropriate:	a. Sound alarm and call for assistance, notify Emergency Coordinator b. Evacuate to predetermined safe place c. Account for personnel d. Use fire extinguisher <u>only if safe and trained</u> in its use e. Stand by to inform emergency responders of materials and conditions	Type/ Location <u>ABC/Truck</u> ___/___ ___/___ ___/___ ___/___ ___/___

Description of Spill Response Gear	Location	Description (Other Fire Response Equipment)	Location
N/A		N/A	

Plan to Respond to Security Problems

DECONTAMINATION PLAN

Personnel Decontamination

Consistent with the levels of protection required, step-by-step procedures for personnel decontamination for each level of protection are attached.

Levels of Protection Required for Decontamination Personnel

The levels of protection required for personnel assisting with decontamination will be:

☐ Level B ☐ Level C ☒ Level D modified

Modifications include:

Wearing nitrile gloves, steel toe leather boots, ear, eye, and head protection while operating equipment and sampling.

Disposition of Decontamination Wastes

Provide a description of waste disposition, including identification of storage area, hauler, and final disposal site, if applicable:

The direct push borings will be backfilled with hydrated medium bentonite chips. Boring cuttings will be placed into drums and staged at the site pending characterization for disposal.

Equipment Decontamination

A procedure for decontamination steps required for non-sampling equipment and heavy machinery follows:

The following, to be carried out in sequence, is an EPA Region 9 recommended procedure for the decontamination of sampling equipment: Non-phosphate detergent and tap water wash, using a brush if necessary, tap-water rinse, deionized/distilled water rinse, isopropanol or methanol rinse, deionized/distilled water rinse (twice).

Sampling Equipment Decontamination

Equipment will be decontaminated in a predesignated area on pallets or plastic sheeting, and clean bulky equipment will be stored on plastic sheeting in uncontaminated areas. Cleaned small equipment will be stored in plastic bags. Materials to be stored more than a few hours will also be covered.

LEVEL D/MODIFIED LEVEL D DECONTAMINATION PLAN

Check indicated functions or add steps, as necessary:

Function	Description of Process, Solution, and Container
☒Segregated equipment drop	
☐Boot cover and glove wash	
☐Boot cover and glove rinse	
☐Tape removal - outer glove and boot	
☐Boot cover removal	
☒Outer glove removal	Remove and dispose of contaminated gloves in the designated containment bag.
HOTLINE	
☐Suit/safety boot wash	
☐Suit/boot/glove rinse	
☐Safety boot removal	
☒Suit removal	Remove and. Wash cotton overalls separately. Decontaminate raingear on site
☐Inner glove wash	
☐Inner glove rinse	
☐Inner glove removal	
☐Inner clothing removal	
CONTAMINATION REDUCTION ZONE (CRZ)/SAFE ZONE BOUNDARY	
☐Field wash	
☐Redress	

Disposal Plan, End of Day:

Non-hazardous waste such as PPE and paper towels will be placed in garbage bags and securely taped. Decontamination fluids will temporarily be stored in 5 gallon buckets.

Disposal Plan, End of Week:

Dispose of contaminated gloves and equipment in a secured area pending analytical results.

Disposal Plan, End of Project:

Dispose of contaminated gloves and equipment in a secured area pending analytical results.

LEVEL C DECONTAMINATION PLAN	
Check indicated functions or add steps, as necessary:	
Function	**Description of Process, Solution, and Container**
☐Segregated equipment drop	
☐Boot cover and glove wash	
☐Boot cover and glove rinse	
☐Tape removal - outer glove and boot	
☐Boot cover removal	
☐Outer glove removal	
HOTLINE	
☐Suit/safety boot wash	
☐Suit/boot/glove rinse	
☐Safety boot removal	
☐Suit removal	
☐Inner glove wash	
☐Inner glove rinse	
☐Facepiece removal	
☐Inner glove removal	
☐Inner clothing removal	
CONTAMINATION REDUCTION ZONE (CRZ)/SAFE ZONE BOUNDARY	
☐Field wash	
☐Redress	
Disposal Plan, End of Day:	
Disposal Plan, End of Week:	
Disposal Plan, End of Project:	

LEVEL B DECONTAMINATION PLAN	
Check indicated functions or add steps, as necessary: NA	
Function	**Description of Process, Solution, and Container**
☐Segregated equipment drop	
☐Boot cover and glove wash	
☐Boot cover and glove rinse	
☐Tape removal - outer glove and boot	
☐Boot cover removal	
☐Outer glove removal	
HOTLINE	
☐Suit/safety boot wash	
☐Suit/SCBA/boot/glove rinse	
☐Safety boot removal	
☐Remove SCBA backpack without disconnecting	
☐Splash suit removal	
☐Inner glove wash	
☐Inner glove rinse	
☐SCBA disconnect and facepiece removal	
☐Inner glove removal	
☐Inner clothing removal	
CONTAMINATION REDUCTION ZONE (CRZ)/SAFE ZONE BOUNDARY	
☐Field wash	
☐Redress	
Disposal Plan, End of Day:	
Disposal Plan, End of Week:	
Disposal Plan, End of Project:	

SITE PERSONNEL AND CERTIFICATION STATUS	
WESTON	
Name: Christina Marquis **Title: Project Manager** **Task(s): 1, 2** **Certification Level or Description:** D ☒ Medical Current ☒ Training Current ☒ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)	**Name: Ben Castellana** **Title: Field Manager** **Task(s): 1, 2** **Certification Level or Description: D** ☒ Training Current ☒ Training Current ☒ Fit Test Current (Quant.) ☐ Fit Test Current (Quant.)
Name: **Title:** **Task(s):** **Certification Level or Description:** ☐ Training Current ☐ Training Current ☐ Fit Test Current (Quant.) ☐ Fit Test Current (Quant.)	**Name:** **Title:** **Task(s):** **Certification Level or Description:** ☐ Training Current ☐ Training Current ☐ Fit Test Current (Quant.) ☐ Fit Test Current (Quant.)
Name: **Title:** **Task(s):** **Certification Level or Description:** ☐ Training Current ☐ Training Current ☐ Fit Test Current (Quant.) ☐ Fit Test Current (Quant.)	**Name:** **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)
Name: **Title:** **Task(s):** **Certification Level or Description:** ☐ Training Current ☒ Training Current ☐ Fit Test Current (Quant.) ☐ Fit Test Current (Quant.)	**Name:** **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

TRAINING CURRENT - Training: All personnel, including visitors, entering the exclusion or contamination reduction zones must have certifications of completion of training in accordance with OSHA 29 CFR 1910, 29 CFR 1926, or 29 CFR 1910.120.

FIT TEST CURRENT - Respirator Fit Testing: All persons, including visitors, entering any area requiring the use or potential use of any negative pressure respirator must have had, as a minimum, a qualitative fit test, administered in accordance with OSHA 29 CFR 1910.134 or ANSI, within the last 12 months. If site conditions require the use of a full-face, negative-pressure, air-purifying respirator for protection from asbestos or lead, employees must have had a qualitative fit test, administered according to OSHA 29 CFR 1910.1001 or 1025/1926, within the last 6 months.

MEDICAL CURRENT - Medical Monitoring Requirements: All personnel, including visitors, entering the exclusion or contamination reduction zones must be certified as medically fit to work and to wear a respirator, if appropriate, in accordance with 29 CFR 1910, 29 CFR 1926/1910, or 29 CFR 1910.120.

The Site Health and Safety Coordinator is responsible for verifying all certifications and fit tests.

SITE PERSONNEL AND CERTIFICATION STATUS

Subcontractor's Health and Safety Program Evaluation

Name of Subcontractor: TBD
Address:

Activities To Be Conducted by Subcontractor:

Evaluation Criteria

Medical program meets OSHA/WESTON criteria ☐ Acceptable ☐ Unacceptable Comments:	Personal protective equipment available ☐ Acceptable ☐ Unacceptable Comments:	On-site monitoring equipment available, calibrated, and operated properly ☐ Acceptable ☐ Unacceptable Comments:
Safe working procedures clearly specified ☐ Acceptable ☐ Unacceptable Comments:	Training meets OSHA/WESTON criteria ☐ Acceptable ☐ Unacceptable Comments:	Emergency procedures ☐ Acceptable ☐ Unacceptable Comments:
Decontamination procedures ☐ Acceptable ☐ Unacceptable Comments:	General health and safety program evaluation ☐ Acceptable ☐ Unacceptable Comments:	Additional comments: ☐ Subcontractor has agreed to and will conform with the WESTON HASP for this project. ☐ Subcontractor will work under his own HASP, which has been accepted by project PM.

Evaluation Conducted by: **Date:**

Subcontractor

Name: **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)	**Name:** **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)
Name: **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)	**Name:** **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)
Name: **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)	**Name:** **Title:** **Task(s):** **Certification Level or Description:** ☐ Medical Current ☐ Training Current ☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

HEALTH AND SAFETY PLAN APPROVAL/SIGNOFF FORM

Site Name: Textured Coatings of America Site	**WO#:** 12767.063.479.1860
Address: 5950 Avalon Boulevard, Los Angeles CA	

I understand, agree to, and will conform with the information set forth in this Health and Safety Plan (and attachments) and discussed in the personnel health and safety briefing(s).

Name	Signature	Date

TRAINING AND BRIEFING TOPICS	
The following items will be covered at the site-specific training meeting, daily or periodically.	
☐ Site characterization and analysis, Sec. 3.0, 29 CFR 1910.120 I	☐ Level A
☒ Physical hazards, HASP Form 07	☐ Level B
☒ Chemical hazards, HASP Form 04	☐ Level C
☒ Animal bites, stings, and poisonous plants	☒ Level D modified
☐ Etiologic (infectious) agents	☒ Monitoring, 29 CFR 1910.120 (h)
☐ Site control, 29 CFR 1910.120 d	☒ Decontamination, 29 CFR 1910.120 (k)
☐ Engineering controls and work practices, 29 CFR 1910.120 (g)	☒ Emergency response, 29 CFR 1910.120 (l)
☒ Heavy machinery	☐ Elements of an emergency response, 29 CFR 1910.120 (l)
☐ Forklift	☐ Procedures for handling site emergency incidents, 29 CFR 1910.120 (l)
☒ Backhoe	☐ Off-site emergency response, 29 CFR 1910.120 (l)
☒ Equipment	☒ Handling drums and containers, 29 CFR 1910.120 (j)
☒ Tools	☐ Opening drums and containers
☐ Ladder, 29 CFR 1910.27 (d)/29 CFR 1926	☐ Electrical material handling equipment
☒ Overhead and underground utilities	☐ Radioactive waste
☐ Scaffolds	☐ Shock-sensitive waste
☐ Structural integrity	☐ Laboratory waste packs
☐ Unguarded openings - wall, floor, ceilings	☐ Sampling drums and containers
☐ Pressurized air cylinders	☐ Shipping and transport, 49 CFR 172.101, IATA
☒ Personal protective equipment, 29 CFR 1910.120 (g); 29 CFR 1910.134	☐ Tank and vault procedures
☐ Respiratory protection, 29 CFR 1910.120 (g); ANSI Z88.2	☐ Illumination, 29 CFR 1910.120 (m)
☐	☐ Sanitation, 29 CFR 1910.120 (n)
☐	☐
☐	☐

ATTACHMENT A
CHEMICAL CONTAMINANTS DATA SHEETS

(Attach completed HASP Form 25
[H&S—1 Chemical Hazards Form]
or attach appropriate data sheets.)

HEALTH AND SAFETY EVALUATION — 1 CHEMICAL HAZARDS

Hazardous Substance/Tasks	Physical Properties	Normal Physical State	State At Site/Proj. Temp.	Characteristics	Exposure Limits	Route(s) of Exposure/ Symptoms	Monitoring Instruments/ Ionization Potential + % Response
	☐ Explosive ☐ Flammable ☐ Corrosive ☐ Reactive ☐ Water Reactive ☐ Oxidizer	☐ Solid ☐ Liquid ☐ Gas	☐ Solid ☐ Liquid ☐ Gas	pH: FP: LEL: UEL: Auto. Ig.: BP:	☐ CA _____ ☐ PEL _____ ☐ TLV _____ ☐ IDLH _____ ☐ Only toxicological data available ☐ Other:	☐ Inhalation ☐ Ingestion ☐ Skin Absorption ☐ Contact ☐ Direct Penetration ☐ Other: _____	☐ HNu ☐ 11.7 eV ☐ 10.2 eV ☐ OVM ☐ 10.0/10.6 eV ☐ 11.8 eV ☐ CGI ☐ OVA ☐ _____
CAS No:	☐ Radioactive ☐ Other	Incompatible With:		MP: Sp. Gr.:			
Synonyms:				Vap. D.: Vap. P.: H_2O Sol.: Other:		Symptoms:	IP: % Response:

ATTACHMENT A

CHEMICAL DATA NOTES &

MATERIAL SAFETY DATA SHEETS

(MSDSs)

ATTACHMENT B

SAFETY PROCEDURES/FIELD OPERATING PROCEDURES

(FLD OPs)

SEE SHSC SAFETY OFFICER MANUAL

ATTACHMENT D

SITE-SPECIFIC HAZARD COMMUNICATION PROGRAM

SITE-SPECIFIC HAZARD COMMUNICATION PROGRAM

Location-Specific Hazard Communication Program/Checklist

To ensure an understanding of and compliance with the Hazard Communication Standard, WESTON will use this checklist/document (or similar document) in conjunction with the WESTON Written Hazard Communication Program as a means of meeting site- or location-specific requirements.

While responsibility for activities within this document reference the WESTON Safety Officer (SO), it is the responsibility of all personnel to effect compliance. Responsibilities under various conditions can be found within the WESTON Written Hazard Communication Program.

To ensure that information about the dangers of all hazardous chemicals used by WESTON are known by all affected employees, the following Hazard Communication Program has been established. All affected personnel will participate in the Hazard Communication Program. This written program, as well as WESTON's Corporate Hazard Communication Program, will be available for review by any employee, employee representative, representative of OSHA, NIOSH, or any affected employer/employee on a multi-employer site.

☐ Site or other location name/address: Textured Coatings of America

☐ Site/Project/Location Manager: Ben Castellana

☐ Site/Location Safety Officer: Ben Castellana

☐ List of chemicals compiled, format: ☒ HASP ☐ Other: _____

☐ Location of MSDS files: In the Health and Safety Plan located on site.

☐ Training conducted by: Name: Ben Castellana Date: _____

☐ Indicate format of training documentation: ☒ Field Log: ☐ Other: _____

☐ Client briefing conducted regarding hazard communication: _____

☐ If multi-employer site (client, subcontractor, agency, etc.), indicate name of affected companies:

_____

☐ Other employer(s) notified of chemicals, labeling, and MSDS information: _____

☐ Has WESTON been notified of other employer's or client's hazard communication program(s), as necessary? ☐ Yes ☐ No

List of Hazardous Chemicals

A list of known hazardous chemicals used by WESTON personnel must be prepared and attached to this document or placed in a centrally identified location with the MSDSs. Further information on each chemical may be obtained by reviewing the appropriate MSDS. The list will be arranged to enable cross-reference with the MSDS file and the label on the container. The SO or Location Manager is responsible for ensuring the chemical listing remains up-to-date.

Container Labeling

The WESTON SO will verify that all containers received from the chemical manufacturer, importer, or distributor for use on-site are clearly labeled.

The SO is responsible for ensuring that labels are placed where required and for comparing MSDSs and other information with label information to ensure correctness.

Material Safety Data Sheets (MSDSs)

The SO is responsible for establishing and monitoring WESTON's MSDS program for the location. The SO will ensure that procedures are developed to obtain the necessary MSDSs and will review incoming MSDSs for new or significant health and safety information. He/she will see that any new information is passed on to the affected employees. If an MSDS is not received at the time of initial shipment, the SO will call the manufacturer and have an MSDS delivered for that product in accordance with the requirements of WESTON's Written Hazard Communication Program.

A log for, and copies of, MSDSs for all hazardous chemicals in use will be kept in the MSDS folder at a location known to all site workers. MSDSs will be readily available to all employees during each work shift. If an MSDS is not available, immediately contact the WESTON SO or the designated alternate. When a revised MSDS is received, the SO will immediately replace the old MSDS.

Employee Training and Information

The SO is responsible for the WESTON site-specific personnel training program. The SO will ensure that all program elements specified below are supplied to all affected employees.

At the time of initial assignment for employees to the work site, or whenever a new hazard is introduced into the work area, employees will attend a health and safety meeting or briefing that includes the information indicated below.

- Hazardous chemicals present at the work site.
- Physical and health risks of the hazardous chemicals.
- The signs and symptoms of overexposure.
- Procedures to follow if employees are overexposed to hazardous chemicals.
- Location of the MSDS file and Written Hazard Communication Program.
- How to determine the presence or release of hazardous chemicals in the employee's work area.
- How to read labels and review MSDSs to obtain hazard information.
- Steps WESTON has taken to reduce or prevent exposure to hazardous chemicals.
- How to reduce or prevent exposure to hazardous chemicals through the use of controls procedures, work practices, and personal protective equipment.
- Hazardous, non-routine tasks to be performed (if any).
- Chemicals within unlabeled piping (if any).

Hazardous Non-routine Tasks

When employees are required to perform hazardous non-routine tasks, the affected employee(s) will be given information by the SO about the hazardous chemicals he or she may use during such activity. This information will include specific chemical hazards, protective and safety measures the employee can use, and steps WESTON is using to reduce the hazards. These steps include, but are not limited to, ventilation, respirators, presence of another employee, and emergency procedures.

Chemicals in Unlabeled Pipes

Work activities may be performed by employees in areas where chemicals are transferred through unlabeled pipes. Prior to starting work in these areas, the employee will contact the SO, at which time information as to the chemical(s) in the pipes, potential hazards of the chemicals or the process involved, and the safety precautions that should be taken will be determined and presented.

Multi-Employer Work Sites

It is the responsibility of the SO to provide other employers with information about hazardous chemicals imported by WESTON to which their employees may be exposed, along with suggested safety precautions. It is also the responsibility of the SO and the Site Manager to obtain information about hazardous chemicals used by other employers to which WESTON employees may be exposed. WESTON's chemical listing will be made available to other employers, as requested. MSDSs will be available for viewing, as necessary.

The location, format, and/or procedures for accessing MSDS information must be relayed to affected employees.

ATTACHMENT E

AIR SAMPLING PROGRAM DATA SHEETS

SITE AIR MONITORING PROGRAM

Field Data Sheets

Location:

% LEL	% O_2	PID (units)	FID (units)	Aerosol Monitor (mg/m^3)	GM: Shield Probe/ Thin Window		NaI (uR/hr)	ZnS (cpm)
					mR/hr	cpm		
Monitox (ppm)				Detector Tube(s)				
Sound Levels (dBA)		Illumination	pH	Other	Other	Other	Other	Other

Location:

% LEL	% O_2	PID (units)	FID (units)	Aerosol Monitor (mg/m^3)	GM: Shield Probe/ Thin Window		NaI (uR/hr)	ZnS (cpm)
					mR/hr	cpm		
Monitox (ppm)				Detector Tube(s)				
Sound Levels (dBA)		Illumination	pH	Other	Other	Other	Other	Other

AIR MONITORING/SAMPLING DATA LOG

Client:	**W.O. No.:**	**Sample No.:**
Address :	**Sampled By:**	**Date:**

Employee and Location Information

Employee Name:	**Employee No.:**	**Job Title:**

Respirator ☐ APR ☐ ½ Mask ☐ Full Face

☐ PAPR ☐ ½ Mask ☐ Full Face ☐ Hood
☐ SAR ☐ ½ Mask ☐ Full Face ☐ Hood
☐ SCBA

Manufacturer:

Cartridge Type:

PPE: ☐ Hard Hat ☐ HPD ☐ Gloves ☐ Safety Shoes ☐ Coveralls ☐ Other:

Sampling Data

Sampling Type: ☐ Personal ☐ TWA ☐ STEL ☐ Area ☐ Source ☐ Full Shift ☐ Partial Shift ☐ Grab	**Media:**	**Pump Type/Serial No.:** /
Calibrator/Serial No.: /	**Pre-Calibration:** 1. 2. 3. **avg-pre:**	**Post-Calibration:** 1. 2. 3. **avg-post:**

Start Time:	**Restart Time:**	**Restart Time:**	**Avg. Flowrate:**	**% Change:**
1st Stop Time:	**2nd Stop Time:**	**3rd Stop Time:**	**Total Time:**	**Volume:**

Multiple Samples for this TWA: ☐ Yes ☐ No	**Multiple Chemical Exposures:** ☐ Yes ☐ No	**Exposure Time:** ☐ Normal ☐ Worst Case

Sampling Conditions

Weather Conditions: Temp: R.H: B.P.: Other:

Engineering Controls:

Substances Evaluated

Substance	Result	Substance	Result	Substance	Result

Observations and Comments

QA by: **Date:**

APPENDIX C:

STANDARD OPERATING PROCEDURES

United States Environmental Protection Agency | Office of Solid Waste and Emergency Response | OSWER Document 9200.5-170-FS
EPA Publication 540-FS-07-004
January 2007

Multi-Media, Multi-Concentration, Inorganic Analytical Service for Superfund (ILM05.4)

Office of Superfund Remediation & Technology Innovation
Analytical Services Branch (5203P)

Quick Reference Fact Sheet

Under the legislative authority granted to the U.S. Environmental Protection Agency (EPA) under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), EPA develops standardized analytical methods for the measurement of various pollutants in environmental samples from known or suspected hazardous waste sites. Among the pollutants that are of concern to EPA at such sites is a series of inorganic analytes and cyanide that are analyzed using Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES), Inductively Coupled Plasma-Mass Spectrometry (ICP-MS), Cold Vapor Atomic Absorption (CVAA), and colorimetric techniques. The Analytical Services Branch (ASB) of the Office of Superfund Remediation and Technology Innovation (OSRTI) offers an analytical service that provides data from the analysis of water/aqueous and soil/sediment samples for inorganic analytes for use in the Superfund and other decision making processes. Through a series of standardized procedures and a strict chain-of-custody, the inorganic analytical service produces data of known and documented quality. This service is available through the Superfund Contract Laboratory Program (CLP).

DESCRIPTION OF SERVICES

The inorganic analytical service provides a technical and contractual framework for laboratories to utilize EPA/CLP analytical methods. These methods are used in the isolation, detection and quantitative measurement of 23 target analyte metals (including mercury) and cyanide in both water and soil/sediment environmental samples. The CLP provides the methods to be used and the specific technical, reporting, and contractual requirements, including Quality Assurance (QA), Quality Control (QC), and Standard Operating Procedures (SOPs), by which EPA evaluates the data.

Three data delivery turnaround times are available to CLP customers: 7, 14, and 21-day turnaround after receipt of the last sample in the set. A 72-hour preliminary data submission option also is available for all turnaround times. The data associated with these Preliminary Results is due within 72 hours after receipt of each sample at the laboratory. In addition, data users may include, but are not limited to, additional analytes and modified quantitation limits.

The ILM05.4 analytical service is based on the previous ILM05.3 analytical service. The update to ILM05.4 includes a change to the Contract Required Quantitation Limits (CRQL) for the Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) analysis for vanadium in water matrices from 1 µg/L to 5 µg/L.

DATA USES

This analytical service provides data that EPA uses for a variety of purposes. Examples include determining the nature and extent of contamination at a hazardous waste site, assessing priorities for response based on risks to human health and the environment, determining appropriate cleanup actions, and determining when remedial actions are complete. The data may be used in all stages in the investigation of a hazardous waste site including: site inspections, Hazard Ranking System scoring, remedial investigations/feasibility studies, remedial design, treatability studies, and removal actions. In addition, this service provides data that are available for use in Superfund enforcement/litigation activities.

TARGET ANALYTES

The inorganic analytes and quantitation limits for which this service is applicable are listed in Table 1. Specific detection limits are method and matrix dependent.

The list of target analytes for this service was originally derived from the EPA Priority Pollutant List of 129 compounds. In the years since the inception of the CLP, analytes have been added to and deleted from the Target Analyte List (TAL), based on advances in analytical methods, evaluation of method performance data, and the needs of the Superfund program.

Table 1. Inorganic Target Analyte List and Contract Required Quantitation Limits (CRQLs)

Analyte	ICP-AES CRQL for Water (µg/L)	ICP-AES CRQL for Soil (mg/kg)	ICP-MS CRQL for Water (µg/L)
1. Aluminum	200	20	--
2. Antimony	60	6	2
3. Arsenic	10	1	1
4. Barium	200	20	10
5. Beryllium	5	0.5	1
6. Cadmium	5	0.5	1
7. Calcium	5000	500	--
8. Chromium	10	1	2
9. Cobalt	50	5	1
10. Copper	25	2.5	2
11. Iron	100	10	--
12. Lead	10	1	1
13. Magnesium	5000	500	--
14. Manganese	15	1.5	1
15. Mercury	0.2	0.1	--
16. Nickel	40	4	1
17. Potassium	5000	500	--
18. Selenium	35	3.5	5
19. Silver	10	1	1
20. Sodium	5000	500	--
21. Thallium	25	2.5	1
22. Vanadium	50	5	5
23. Zinc	60	6	2
24. Cyanide	10	2.5	--

METHODS AND INSTRUMENTATION

The Contractor will demonstrate the ability to meet certain program data quality objectives prior to analyzing field samples. The laboratories must document methods used to generate analytical results and determine Method Detection Limits (MDLs). ICP-Atomic Emission Spectroscopy (ICP-AES) is used to analyze water, sediment, sludge, and soil samples. Water and soil samples are treated with acids and heated. The digestates are then analyzed for trace metals by an atomic emission optical spectroscopic technique. The samples are nebulized and the aerosol is transported to a plasma torch. The atomic-line emission spectra are dispersed and a photosensitive device monitors line intensities.

ICP-Mass Spectrometry (ICP-MS) is used to determine the concentration of dissolved and total recoverable elements in water/aqueous samples. The sample material is introduced, by nebulization, into radio frequency plasma where desolvation, atomization, and ionization take place. The ions are extracted from the plasma through a differentially pumped vacuum interface and separated based on their mass-to-charge ratio.

Cold Vapor Atomic Absorption (CVAA) is used to analyze water, sediment, sludge, and soil samples for total mercury. Organo-mercury compounds may also be present and will need to be broken down and converted to mercuric ions to respond to the CVAA techniques. For water samples, organic compounds are oxidized and then reacted with a strong reducing agent. The volatile free mercury is then driven from the reaction flask by bubbling air through the solution. The air stream carries the mercury atoms to an absorption cell, which is then placed in the light path of the AA spectrophotometer. For soil/sediment, the samples undergo acid digestion/oxidation followed by reduction and measurement by conventional cold vapor technique.

Various water types, sediment, sludge, and soil samples are also analyzed for total cyanide. Hydrocyanic acid (HCN) is released through a reflux-distillation and absorbed in a scrubber containing sodium hydroxide solution. The cyanide ion is determined colorimetrically by converting it to cyanogen chloride (CNCl).

Table 2 summarizes the methods and instruments used in this analytical service.

DATA DELIVERABLES

Data deliverables for this service include both hardcopy/electronic data reporting forms and supporting raw data. The laboratory must submit data to EPA within 7-, 14- or 21-days, or preliminary data must be submitted within 72 hours after laboratory receipt of each sample in the set, if requested. EPA then processes the data through an automated Data Assessment Tool (DAT). DAT is a complete CLP data assessment package. DAT incorporates Contract Compliance Screening (CCS) and Computer-Aided Data Review and Evaluation (CADRE)

Table 2. Methods and Instruments

Analyte	Instrument	Method
Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, K, Se, Ag, Na, Tl, V, Zn	Inductively Coupled Plasma - Atomic Emission Spectroscopy (ICP-AES)	ICP analysis of atomic-line emission spectra.
Sb, As, Ba, Be, Cd, Cr, Co, Cu, Pb, Mn, Ni, Se, Ag, Tl, V, Zn	ICP - Mass Spectrometry (ICP-MS)	ICP analysis of ions separated on basis of mass-to-charge ratio.
Mercury (Hg)	Cold Vapor Atomic Absorption (CVAA)	Acid digestion/oxidation followed by reduction and CVAA analysis.
Cyanide (CN)	Colorimeter or Spectrophotometer	Distillation followed by colorimetric analysis.

Table 3. Quality Control

QC Operation	Frequency
Instrument Calibration	Daily or each time instrument is set up.
Initial Calibration Verification	Following each instrument calibration for each wavelength or mass used.
Initial Calibration Blank	Following each instrument calibration, immediately after the Initial Calibration Verification (ICV).
Continuing Calibration Verification	For each wavelength or mass used, at a frequency of 10% or every two hours of a run, whichever is more frequent, and at the beginning and end of each run.
Continuing Calibration Blank	10% or every two hours of a run, whichever is more frequent, and at the beginning and end of each run. Performed immediately after the last Continuing Calibration Verification (CCV).
CRQL Check Standard (CRI)	Every 20 analytical samples and at the beginning and end of each run, but not before the ICV. Performed before the Interference Check Sample.
Interference Check Sample	For ICP-AES, every 20 analytical samples and at the beginning and end of each run, immediately after the CRI. For ICP-MS, at the beginning of the run.
Serial Dilution for ICP	For each matrix type or for each SDG, whichever is more frequent.
Preparation Blank	For each SDG or each sample preparation and analysis procedure per batch of prepared samples.
Laboratory Control Sample	For each SDG or each sample preparation and analysis procedure per batch of prepared samples, except aqueous mercury and cyanide.
Spike Sample	For each matrix type or for each SDG, whichever is more frequent.
Post Digestion/Distillation Spike	Each time Spike Sample Recovery is outside QC limits.
Duplicate Sample Analysis	For each matrix type or for each SDG, whichever is more frequent.
ICP-MS Tune	Prior to calibration.
Method Detection Limit Determination	Prior to contract, annually thereafter, and after major instrument maintenance.
Interelement Corrections	Prior to contract, quarterly thereafter, and after major instrument adjustment.
Linear Range Analysis	Prior to contract, and quarterly thereafter.

review to provide EPA Regions with electronic reports (PC-compatible reports, spreadsheets, and electronic files) within 24 to 48 hours from the receipt of the data This automated tool facilitates the transfer of analytical data into Regional databases. DAT can also be used to assist in the data validation process at the Region. In addition to the Regional electronic reports, the CLP laboratories are provided with a data assessment report that documents the instances of noncompliance. The laboratory has four business days to reconcile defective data and resubmit the data to EPA. EPA then reviews the data for noncompliance and sends a final data assessment report to the CLP laboratory and the Region.

QUALITY ASSURANCE

The Quality Assurance (QA) process consists of management review and oversight at the planning, implementation, and completion stages of the environmental data collection activity and ensures that the data provided are of the quality required. During the data collection effort, QA activities ensure that the Quality Control (QC) system is functioning effectively and that the deficiencies uncovered by the QC system are corrected. After environmental data are collected, QA activities focus on assessing the quality of data obtained to determine its suitability to support enforcement or remedial decisions. Each contract laboratory will establish a Quality Assurance Plan (QAP) with the objective of providing sound analytical chemical measurements. The QAP must specify the policies, organization, objectives, functional guidelines, and specific QA/QC activities designed to achieve the data quality requirements for this analytical service.

QUALITY CONTROL

The QC process includes those activities required during analytical data collection to produce data of known and documented quality.

The analytical data acquired from QC procedures are used to estimate and evaluate the analytical results and to determine the necessity for, or the effect of, corrective action procedures. The QC procedures required for this analytical service are shown in **Table 3**.

PERFORMANCE MONITORING ACTIVITIES

Laboratory performance monitoring activities are provided primarily by ASB and the Regions to ensure that contract laboratories are producing data of the appropriate quality. EPA performs on-site laboratory audits, data package audits, and evaluates laboratory performance with blind performance evaluation samples.

For more information, or for suggestions to improve this analytical service, please contact:

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United States Environmental Protection Agency | Office of Solid Waste and Emergency Response | OSWER Document 9200.5-171-FS
EPA Publication 540-FS-07-001
August 2007

Multi-Media, Multi-Concentration, Organic Analytical Service for Superfund (SOM01.2)

Office of Superfund Remediation and Technology Innovation (OSRTI)
Analytical Services Branch (ASB) (5203P)

Quick Reference Fact Sheet

Under the legislative authority granted to the U.S. Environmental Protection Agency (EPA) under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), EPA develops standardized analytical methods for the measurement of various pollutants in environmental samples from known or suspected hazardous waste sites. Among the pollutants that are of concern to the EPA at such sites are a series of volatile, semivolatile, pesticide, and Aroclor compounds that are analyzed using gas chromatography coupled with mass spectrometry (GC/MS) and gas chromatography with an electron capture detector (GC/ECD). The Analytical Services Branch (ASB) of the Office of Superfund Remediation and Technology Innovation (OSRTI) offers an analytical service that provides data from the analysis of water and soil/sediment samples for organic compounds for use in the Superfund decision-making process. Through a series of standardized procedures and a strict chain-of-custody, the organic analytical service produces data of known and documented quality. This service is available through the Superfund Contract Laboratory Program (CLP).

DESCRIPTION OF SERVICES

This new organic analytical service provides a technical and contractual framework for laboratories to apply EPA/CLP analytical methods for the isolation, detection, and quantitative measurement of 52 volatile, 67 semivolatile, 21 pesticide, and 9 Aroclor target compounds in water and soil/sediment environmental samples. The CLP provides the methods to be used and the specific technical, reporting, and contractual requirements, including Quality Assurance (QA), Quality Control (QC), and Standard Operating Procedures (SOPs), by which EPA evaluates the data. This service uses GC/MS and GC/ECD methods to analyze the target compounds.

Three data delivery turnarounds are available to CLP customers: 7-day, 14-day, and 21-day turnaround after laboratory receipt of the last sample in the set. In addition, there are 48-hour (for trace volatiles and volatiles) and 72-hour (for semivolatiles, pesticides, and Aroclors) preliminary data submission options available. Options under this service include a closed system purge-and-trap method for low-level volatile soil analysis and methanol preservation for medium-level volatile soil analysis. In addition, data users may request modifications to the SOW that may include, but are not limited to, additional compounds, sample matrices other than soil/sediment or water, lower quantitation limits, and other requirements to enhance method performance.

DATA USES

This analytical service provides data which EPA uses for a variety of purposes, such as determining the nature and extent of contamination at a hazardous waste site, assessing priorities for response based on risks to human health and the environment, determining appropriate cleanup actions, and determining when remedial actions are complete. The data may be used in all stages in the investigation of a hazardous waste site including, but not limited to: site inspections; Hazard Ranking System (HRS) scoring; remedial investigations/Feasibility Studies (FSs); remedial design; treatability studies; and removal actions. In addition, this service provides data that will be available for use in Superfund enforcement/litigation activities.

TARGET COMPOUNDS

Table 1 lists the compounds for which this service is applicable and the corresponding quantitation limits. Specific quantitation limits are highly matrix-dependent.

Table 1. Target Compound List (TCL) and Contract Required Quantitation Limits (CRQLs) for SOM01.2*

	Quantitation Limits				
	Trace Water by SIM (µg/L)	Trace Water (µg/L)	Low Water (µg/L)	Low Soil (µg/kg)	Med. Soil (µg/kg)
VOLATILES					
1. Dichlorodifluoromethane		0.50	5.0	5.0	250
2. Chloromethane		0.50	5.0	5.0	250
3. Vinyl Chloride		0.50	5.0	5.0	250
4. Bromomethane		0.50	5.0	5.0	250
5. Chloroethane		0.50	5.0	5.0	250
6. Trichlorofluoromethane		0.50	5.0	5.0	250
7. 1,1-Dicholoroethene		0.50	5.0	5.0	250
8. 1,1,2-Trichloro-1,2,2-trifluoroethane		0.50	5.0	5.0	250
9. Acetone		5.0	10	10	500
10. Carbon Disulfide		0.50	5.0	5.0	250
11. Methyl acetate		0.50	5.0	5.0	250
12. Methylene chloride		0.50	5.0	5.0	250
13. trans-1,2-Dichloroethene		0.50	5.0	5.0	250
14. Methyl tert-butyl ether		0.50	5.0	5.0	250
15. 1,1-Dichloroethane		0.50	5.0	5.0	250
16. cis-1,2-Dichloroethene		0.50	5.0	5.0	250
17. 2-Butanone		5.0	10	10	500
18. Bromochloromethane		0.50	5.0	5.0	250
19. Chloroform		0.50	5.0	5.0	250
20. 1,1,1-Trichloroethane		0.50	5.0	5.0	250
21. Cyclohexane		0.50	5.0	5.0	250
22. Carbon tetrachloride		0.50	5.0	5.0	250
23. Benzene		0.50	5.0	5.0	250
24. 1,2-Dichloroethane		0.50	5.0	5.0	250
25. 1,4-Dioxane			100	100	5000
26. Trichloroethene		0.50	5.0	5.0	250
27. Methylcyclohexane		0.50	5.0	5.0	250
28. 1,2-Dichloropropane		0.50	5.0	5.0	250
29. Bromodichloromethane		0.50	5.0	5.0	250
30. cis-1,3-Dichloropropene		0.50	5.0	5.0	250
31. 4-Methyl-2-pentanone		5.0	10	10	500
32. Toluene		0.50	5.0	5.0	250
33. trans-1,3-Dichloropropene		0.50	5.0	5.0	250
34. 1,1,2-Trichloroethane		0.50	5.0	5.0	250
35. Tetrachloroethene		0.50	5.0	5.0	250
36. 2-Hexanone		5.0	10	10	500
37. Dibromochloromethane		0.50	5.0	5.0	250
38. 1,2-Dibromoethane	0.050	0.50	5.0	5.0	250
39. Chlorobenzene		0.50	5.0	5.0	250

	Quantitation Limits				
	Trace Water by SIM (µg/L)	Trace Water (µg/L)	Low Water (µg/L)	Low Soil (µg/kg)	Med. Soil (µg/kg)
VOLATILES (CON'T)					
40. Ethylbenzene		0.50	5.0	5.0	250
41. o-Xylene		0.50	5.0	5.0	250
42. m, p-Xylene		0.50	5.0	5.0	250
43. Styrene		0.50	5.0	5.0	250
44. Bromoform		0.50	5.0	5.0	250
45. Isopropylbenzene		0.50	5.0	5.0	250
46. 1,1,2,2-Tetrachloroethane		0.50	5.0	5.0	250
47. 1,3-Dichlorobenzene		0.50	5.0	5.0	250
48. 1,4-Dichlorobenzene		0.50	5.0	5.0	250
49. 1,2-Dichlorobenzene		0.50	5.0	5.0	250
50. 1,2-Dibromo-3-chloropropane	0.050	0.50	5.0	5.0	250
51. 1,2,4-Trichlorobenzene		0.50	5.0	5.0	250
52. 1,2,3-Trichlorobenzene		0.50	5.0	5.0	250
SEMIVOLATILES	Low Water by SIM (µg/L)	Low Water (µg/L)	Low Soil by SIM (µg/kg)	Low Soil (µg/kg)	Med. Soil (µg/kg)
53. Benzaldehyde		5.0		170	5000
54. Phenol		5.0		170	5000
55. bis-(2-chloroethyl) ether		5.0		170	5000
56. 2-Chlorophenol		5.0		170	5000
57. 2-Methylphenol		5.0		170	5000
58. 2,2'-Oxybis (1-chloropropane)		5.0		170	5000
59. Acetophenone		5.0		170	5000
60. 4-Methylphenol		5.0		170	5000
61. N-Nitroso-di-n propylamine		5.0		170	5000
62. Hexachloroethane		5.0		170	5000
63. Nitrobenzene		5.0		170	5000
64. Isophorone		5.0		170	5000
65. 2-Nitrophenol		5.0		170	5000
66. 2,4-Dimethylphenol		5.0		170	5000
67. Bis (2-chloroethoxy) methane		5.0		170	5000
68. 2,4-Dichlorophenol		5.0		170	5000
69. Napthalene	0.10	5.0	3.3	170	5000
70. 4-Chloroaniline		5.0		170	5000
71. Hexachlorobutadiene		5.0		170	5000
72. Caprolactam		5.0		170	5000
73. 4-Chloro-3-methylphenol		5.0		170	5000
74. 2-Methylnapthalene	0.10	5.0	3.3	170	5000
75. Hexachlorocyclo-pentadiene		5.0		170	5000
76. 2,4,6-Trichlorophenol		5.0		170	5000
77. 2,4,5-Trichlorophenol		5.0		170	5000

* For volatiles, quantitation limits for medium soils are approximately 50 times the quantitation limits for low soils. For semivolatile medium soils, quantitation limits are approximately 30 times the quantitation limits for low soils.

Table 1. Target Compound List (TCL) and Contract Required Quantitation Limits (CRQLs) for SOM01.2* (Con't)

	Quantitation Limits				
	Low Water by SIM (µg/L)	Low Water (µg/L)	Low Soil by SIM (µg/kg)	Low Soil (µg/kg)	Med. Soil (µg/kg)
SEMIVOLATILES (CON'T)					
78. 1,1'-Biphenyl		5.0		170	5000
79. 2-Chloronapthalene		5.0		170	5000
80. 2-Nitroaniline		10		330	10000
81. Dimethylphthalate		5.0		170	5000
82. 2,6-Dinitrotoluene		5.0		170	5000
83. Acenaphthylene	0.10	5.0	3.3	170	5000
84. 3-Nitroaniline		10		330	10000
85. Acenaphthene	0.10	5.0	3.3	170	5000
86. 2,4-Dinitrophenol		10		330	10000
87. 4-Nitrophenol		10		330	10000
88. Dibenzofuran		5.0		170	5000
89. 2,4-Dinitrotoluene		5.0		170	5000
90. Diethylphthalate		5.0		170	5000
91. Fluorene	0.10	5.0	3.3	170	5000
92. 4-Chlorophenyl-phenyl ether		5.0		170	5000
93. 4-Nitroaniline		10		330	10000
94. 4,6-Dinitro-2-methylphenol		10		330	10000
95. N-Nitrosodiphenylamine		5.0		170	5000
96. 1,2,4,5-Tetrachlorobenzene		5.0		170	5000
97. 4-Bromophenyl-phenylether		5.0		170	5000
98. Hexachlorobenzene		5.0		170	5000
99. Atrazine		5.0		170	5000
100. Pentachlorophenol	0.20	10	6.7	330	10000
101. Phenanthrene	0.10	5.0	3.3	170	5000
102. Anthracene	0.10	5.0	3.3	170	5000
103. Carbazole		5.0		170	5000
104. Di-n-butylphthalate		5.0		170	5000
105. Fluoranthene	0.10	5.0	3.3	170	5000
106. Pyrene	0.10	5.0	3.3	170	5000
107. Butylbenzylphthalate		5.0		170	5000
108. 3,3'-Dichlorobenzidine		5.0		170	5000
109. Benzo (a) anthracene	0.10	5.0	3.3	170	5000
110. Chrysene	0.10	5.0	3.3	170	5000
111. Bis (2-ethylhexyl) phthalate		5.0		170	5000
112. Di-n-octylphthalate		5.0		170	5000
113. Benzo (b) fluoroanthene	0.10	5.0	3.3	170	5000
114. Benzo (k) fluoroanthene	0.10	5.0	3.3	170	5000

	Quantitation Limits				
	Low Water by SIM (µg/L)	Low Water (µg/L)	Low Soil by SIM (µg/kg)	Low Soil (µg/kg)	Med. Soil (µg/kg)
SEMIVOLATILES (CON'T)					
115. Benzo (a) pyrene	0.10	5.0	3.3	170	5000
116. Indeno (1,2,3-cd)-pyrene	0.10	5.0	3.3	170	5000
117. Dibenzo (a,h)-anthracene	0.10	5.0	3.3	170	5000
118. Benzo (g,h,i) perylene	0.10	5.0	3.3	170	5000
119. 2,3,4,6-Tetrachlorophenol		5.0		170	5000
PESTICIDES	**Water (µg/L)**			**Soil (µg/kg)**	
120. alpha-BHC	0.050			1.7	
121. beta-BHC	0.050			1.7	
122. delta-BHC	0.050			1.7	
123. gamma-BHC (Lindane)	0.050			1.7	
124. Heptachlor	0.050			1.7	
125. Aldrin	0.050			1.7	
126. Heptachlor epoxide	0.050			1.7	
127. Endosulfan I	0.050			1.7	
128. Dieldrin	0.10			3.3	
129. 4,4'-DDE	0.10			3.3	
130. Endrin	0.10			3.3	
131. Endosulfan II	0.10			3.3	
132. 4-4'-DDD	0.10			3.3	
133. Endosulfan sulfate	0.10			3.3	
134. 4-4'-DDT	0.10			3.3	
135. Methoxychlor	0.50			17	
136. Endrin ketone	0.10			3.3	
137. Endrin aldehyde	0.10			3.3	
138. alpha-Chlordane	0.050			1.7	
139. gamma-Chlordane	0.050			1.7	
140. Toxaphene	5.0			170	
AROCLORS	**Water (µg/L)**			**Soil (µg/kg)**	
141. Aroclor-1016	1.0			33	
142. Aroclor-1221	1.0			33	
143. Aroclor-1232	1.0			33	
144. Aroclor-1242	1.0			33	
145. Aroclor-1248	1.0			33	
146. Aroclor-1254	1.0			33	
147. Aroclor-1260	1.0			33	
148. Aroclor-1262	1.0			33	
149. Aroclor-1268	1.0			33	

* For volatiles, quantitation limits for medium soils are approximately 50 times the quantitation limits for low soils. For semivolatile medium soils, quantitation limits are approximately 30 times the quantitation limits for low soils.

The TCL for this service was originally derived from the EPA Priority Pollutant List of 129 compounds. In the years since the inception of the CLP, compounds have been added to and removed from the TCL, based on advances in analytical methods, evaluation of method performance data, and the needs of the Superfund program. The SOM analytical service combines the previous OLM and OLC services into one method. For example, drinking water and ground water type samples may be analyzed using the Trace Volatiles method in SOM.

METHODS AND INSTRUMENTATION

For trace volatile water samples, 25 mL of water sample is added to a purge-and-trap device and purged with an inert gas at room temperature. For low/medium volatile water samples, 5 mL of water sample is added to a purge-and-trap device and purged with an inert gas at room temperature. Higher purge temperatures may be used for both trace and low/medium volatile analyses if all technical acceptance criteria is met for all standards, samples, and blanks. For low-level volatile soil samples, organic compounds are generally determined by analyzing approximately 5 g of sample in a closed-system purge-and-trap device at 40°C. For a medium-level soil sample, a soil sample of 5 g is collected, preserved, and/or extracted with methanol and an aliquot of methanol extract is added to 5 mL reagent water and purged at room temperature. For water and soil samples, the volatiles purged from the sample are trapped on a solid sorbent. The purged volatiles are subsequently desorbed by rapidly heating and backflushing with helium, and then introduced into a GC/MS system.

For semivolatile, pesticide, and Aroclor water samples, a 1 L aliquot of sample is extracted with methylene chloride using a continuous liquid-liquid extractor or separatory funnel (for pesticides and Aroclors only). For low-level semivolatile, pesticide, and Aroclor soil samples, a 30 g soil/sediment sample is extracted with methylene chloride/acetone using sonication, automated Soxhlet/Dean-Stark (SDS) extraction, or pressurized fluid extraction techniques. For medium-level semivolatile soil samples, a 1g aliquot is extracted with methylene chloride using the techniques mentioned above for low-level soil samples. For both water and soil samples, the extract is concentrated, subjected to fraction-specific cleanup procedures, and analyzed by GC/MS for semivolatiles or GC/ECD for pesticides and Aroclors. **Table 2** summarizes the methods and instruments used in this analytical service.

DATA DELIVERABLES

Data deliverables for this service include hardcopy data reporting forms and supporting raw data. In addition to the hardcopy deliverable, contract laboratories must also submit the same data electronically. The laboratory must submit data to EPA within 7, 14, or 21-days after laboratory receipt of the last sample in set [or preliminary data within 48 hours (for trace volatiles and volatiles) or 72 hours (for semivolatiles, pesticides, and Aroclors)] after laboratory receipt of each sample. EPA then processes the data through an automated Data Assessment Tool (DAT). DAT provides EPA Regions with PC-compatible reports, spreadsheets, and electronic files within 24-48 hours from the receipt of the data for use in data validation. This automated tool also facilitates the transfer of analytical data into Regional databases. In addition to the Regional electronic reports, the CLP laboratories are provided with a data assessment report that documents the instances of noncompliance. The laboratory has 6 business days to reconcile defective data and resubmit the data to EPA. EPA then reviews the data for noncompliance and sends a final data assessment report to the CLP laboratory and the Region.

QUALITY ASSURANCE (QA)

The QA process consists of management review and oversight at the planning, implementation, and completion stages of the environmental data collection activity. This process ensures that the data provided are of known and documented quality.

During the implementation of the data collection effort, QA activities ensure that the Quality Control (QC) system is functioning effectively and that the deficiencies uncovered by the QC system are corrected. After environmental data are collected, QA activities focus on assessing the quality of data to determine its suitability to support enforcement or remedial decisions.

Each contract laboratory prepares a Quality Assurance Plan (QAP) with the objective of providing sound analytical chemical measurements. The QAP must specify the policies, organization, objectives, and functional guidelines, as well as the QA and QC activities designed to achieve the data quality requirements in the contract.

QUALITY CONTROL (QC)

The QC process includes those activities required during analytical data collection to produce data of known and documented quality. The analytical data acquired from QC procedures are used to estimate and evaluate the analytical results and to determine the necessity for, or the effect of, corrective action procedures. The QC procedures required for this analytical service are provided in **Table 3.**

Table 2. Methods and Instruments

Fraction	Water	Soil
Trace Volatiles	Purge-and-trap followed by GC/MS analysis	N/A
Volatiles	Purge-and-trap followed by GC/MS analysis	Purge-and-trap or closed-system purge-and-trap followed by GC/MS analysis
Semivolatiles	Continuous liquid-liquid extraction (CLLE) followed by GC/MS analysis	Sonication, automated SDS extraction, or pressurized fluid extraction followed by GC/MS analysis
Pesticides	CLLE or separatory funnel extraction followed by dual column GC/ECD analysis	Sonication, automated SDS extraction or pressurized fluid extraction followed by dual column GC/ECD analysis
Aroclors	CLLE or separatory funnel extraction followed by dual column GC/ECD analysis	Sonication, automated SDS extraction or pressurized fluid extraction followed by dual column GC/ECD analysis

Table 3. Quality Control (QC)

QC Operation	Frequency
Deuterated Monitoring Compounds (DMCs) (trace volatiles, volatiles, and semivolatiles)	Added to each sample, standard, and blank
Surrogates (pesticides and Aroclors)	Added to each sample, standard, and blank
Method Blanks (trace volatiles and volatiles)	Analyzed at least every 12 hours for each matrix and level
Method Blanks (semivolatiles, pesticides, and Aroclors)	Prepared with each group of 20 samples or less of same matrix and level, or each time samples are extracted by the same procedure
Instrument Blank (trace volatiles and volatiles)	Analyzed after a sample which contains compounds at concentrations greater than the calibration range
Instrument Blank (pesticides and Aroclors)	Every 12 hours on each GC column used for analysis
Storage Blanks (trace volatiles and volatiles)	Prepared and stored with each set of samples
GC/MS Mass Calibration and Ion Abundance Patterns (trace volatiles, volatiles, and semivolatiles)	Every 12 hours for each instrument used for analysis
GC Resolution Check (pesticides)	Prior to initial calibration, on each instrument used for analysis
Initial Calibration	Upon initial set up of each instrument, and each time continuing calibration fails to meet the acceptance criteria
Continuing Calibration	Every 12 hours for each instrument used for analysis
Internal Standards (trace volatiles, volatiles, and semivolatiles)	Added to each sample, standard, and blank
Matrix Spike and Matrix Spike Duplicate (MS/MSD)	Once every 20 or fewer samples of same fraction, matrix, and level in a Sample Delivery Group (SDG)
Laboratory Control Samples (LCSs) (pesticides and Aroclors)	Once every 20 or fewer samples of same fraction, matrix, and level in an SDG
Method Detection Limit (MDL)	Determined annually, per matrix and level

PERFORMANCE MONITORING ACTIVITIES

Laboratory performance monitoring activities are provided primarily by ASB and the Regions to ensure that contract laboratories are producing data of the appropriate quality. EPA performs on-site laboratory audits, data package audits, GC/MS and/or GC/ECD tape audits, and evaluates laboratory performance through the use of blind Performance Evaluation (PE) samples.

CONTACTING EPA

For more information, or for suggestions to improve this analytical service, please contact:

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STANDARD OPERATING PROCEDURE
IN SITU GROUNDWATER SAMPLING

1 PURPOSE

1.1 This standard operating procedure (SOP) describes the procedure for collecting in situ groundwater samples.

2 SCOPE

2.1 This procedure applies to all project personnel and subcontractors involved in the collection of in situ groundwater samples.

3 REFERENCES

3.1 QED Groundwater Specialist, Current Edition. HydroPunch®, Users Guide, Edition No. 010191.

4 DEFINITIONS

4.1 Groundwater. Water in the saturated zone (confined or unconfined).

5 GENERAL

5.1 In situ groundwater sampling techniques (HydroPunch® or equivalent) will be conducted in order to evaluate the groundwater without the installation of a temporary or permanent well casing.

5.2 The device utilized to collect an in situ sample will be the HydroPunch II® or equivalent. The HydroPunch® tool is specifically used to collect groundwater samples by exposing a well screen after a well tip has been driven into the formation. Usage procedures provided in the manufacturer's instruction manual will be followed.

6 RESPONSIBILITIES

6.1 The Project Manager and Rig Geologist shall ensure that the HydroPunch® or equivalent procedures used are in compliance with the procedures presented in this SOP.

6.2 The Field Supervisor shall assure that the HydroPunch® (or equivalent) procedures used are in compliance with the sampling plan and this SOP and that the field team members are trained and competent in the procedures to be used.

7 PROCEDURES

7.1 Several in situ groundwater sampling apparatuses are commercially available. The selection of sampling apparatus will be based on individual site conditions. The HydroPunch® apparatus is widely used and is described in this SOP. HydroPunch® in situ sampling is designed to provide the capability to obtain a representative® formation water sample without a permanent well installation. Two different HydroPunch®? tools are available for use: HydroPunch®I and HydroPunch®II.

7.2 The HydroPunch® I tool body consists of a stainless steel outer tube, an inner sample chamber, sample chamber Teflon®?check valves, and a drive point on the bottom, all of which can be dismantled for cleaning. The HydroPunch® tool may be driven into place using a 140-pound drop hammer on a downhole wireline. The outside diameter of the tool is 1.66 inches and the length is 63.25 inches.

7.2.1 At each HydroPunch® I sample location, a solid (dummy) cone is advanced to a few feet above the shallow sampling interval, just below the top of the saturated zone. The tool is then replaced with the HydroPunch®I, and subsequently advanced to the desired sample depth and a sample obtained.

The HydroPunch® I is then retracted out of the hole for sample collection (groundwater node sampling) or temporarily left in place for either bailing or peristaltic pumping (hydrocarbon mode sampling). When collecting water samples in silty-clays, it may be necessary to leave the HydroPunch® I in the ground for an extended time (possibly overnight) in order to allow the sampler to fill.

7.3 HydroPunch®II operates similar to HydroPunch® I. This device is driven into the formation soil to the desired sampling interval. The body of the tool is then pulled back about 2 feet. Once the O-ring seal on the cone is broken, groundwater flows into the open end of the HydroPunch® II through the intake screen, past the lower check valve, into the sample chamber, and finally out the upper check valve. When the tool is full, the sample is collected by pulling the tool toward the surface.

7.4 At the sampling interval, an upward pull opens the inlet section of the tool to allow groundwater to flow into the sample chamber. In the groundwater mode sampling, Teflon®?check valves in the HydroPunch® seal the sample chamber when the inlet is closed, which allows the groundwater sample to be brought to ground surface. The sample is then transferred from the sample chamber (approximately 1 liter) to the appropriate sample container.

7.5 Sample containers will be documented and labeled. These procedures for sample collection, preserving samples, sample management, and packing and shipping samples will be done in accordance with the appropriate SOPs.

7.6 Decontamination of the HydroPunch®(or equivalent) will be provided on the truck-mounted rig which has a self-contained rod-washing attachment which directs a hot-water jet from a steam cleaner onto the rods.

7.6.1 The waste fluids generated will be pumped directly from the sealed washer into Department of Transportation approved 55-gallon drums. Drums will be stored and disposed of according to procedures described in the Investigation Derived Waste Plan.

8 RECORD KEEPING REQUIREMENTS AND REFERENCE TO FORMS

Not applicable

9 ATTACHMENTS

Not applicable

U. S. EPA ENVIRONMENTAL RESPONSE TEAM

STANDARD OPERATING PROCEDURES

SOIL SAMPLING

CONTENTS

SUPERCEDES: SOP #2012; Revision 0.0; 11/16/94; U.S. EPA Contract 68-C4-0022.

1.0 SCOPE AND APPLICATION

The purpose of this standard operating procedure (SOP) is to describe the procedures for the collection of representative soil samples. Sampling depths are assumed to be those that can be reached without the use of a drill rig, direct-push, or other mechanized equipment (except for a back-hoe). Analysis of soil samples may determine whether concentrations of specific pollutants exceed established action levels, or if the concentrations of pollutants present a risk to public health, welfare, or the environment.

These are standard (i.e., typically applicable) operating procedures which may be varied or changed as required, dependent upon site conditions, equipment limitations or limitations imposed by the procedure. In all instances, the actual procedures used should be documented and described in an appropriate site report.

Mention of trade names or commercial products does not constitute U.S. Environmental Protection Agency (EPA) endorsement or recommendation for use.

2.0 METHOD SUMMARY

Soil samples may be collected using a variety of methods and equipment depending on the depth of the desired sample, the type of sample required (disturbed vs. undisturbed), and the soil type. Near-surface soils may be easily sampled using a spade, trowel, and scoop. Sampling at greater depths may be performed using a hand auger, continuous flight auger, a trier, a split-spoon, or, if required, a backhoe.

3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

Chemical preservation of solids is not generally recommended. Samples should, however, be cooled and protected from sunlight to minimize any potential reaction. The amount of sample to be collected and proper sample container type are discussed in ERT/REAC SOP #2003 Rev. 0.0 08/11/94, *Sample Storage, Preservation and Handling*.

4.0 INTERFERENCES AND POTENTIAL PROBLEMS

There are two primary potential problems associated with soil sampling - cross contamination of samples and improper sample collection. Cross contamination problems can be eliminated or minimized through the use of dedicated sampling equipment. If this is not possible or practical, then decontamination of sampling equipment is necessary. Improper sample collection can involve using contaminated equipment, disturbance of the matrix resulting in compaction of the sample, or inadequate homogenization of the samples where required, resulting in variable, non-representative results.

5.0 EQUIPMENT

Soil sampling equipment includes the following:

- Maps/plot plan
- Safety equipment, as specified in the site-specific Health and Safety Plan
- Survey equipment or global positioning system (GPS) to locate sampling points
- Tape measure
- Survey stakes or flags
- Camera and film
- Stainless steel, plastic, or other appropriate homogenization bucket, bowl or pan
- Appropriate size sample containers
- Ziplock plastic bags
- Logbook
- Labels
- Chain of Custody records and custody seals
- Field data sheets and sample labels
- Cooler(s)
- Ice
- Vermiculite
- Decontamination supplies/equipment
- Canvas or plastic sheet
- Spade or shovel
- Spatula
- Scoop
- Plastic or stainless steel spoons
- Trowel(s)
- Continuous flight (screw) auger
- Bucket auger
- Post hole auger
- Extension rods
- T-handle
- Sampling trier
- Thin wall tube sampler
- Split spoons
- Vehimeyer soil sampler outfit
  - Tubes
  - Points
  - Drive head
  - Drop hammer
  - Puller jack and grip
- Backhoe

6.0 REAGENTS

Reagents are not used for the preservation of soil samples. Decontamination solutions are specified in ERT/REAC SOP #2006 Rev. 0.0 08/11/94, *Sampling Equipment Decontamination*, and the site specific work plan.

7.0 PROCEDURES

7.1 Preparation

1. Determine the extent of the sampling effort, the sampling methods to be employed, and the types and amounts of equipment and supplies required.
2. Obtain necessary sampling and monitoring equipment.
3. Decontaminate or pre-clean equipment, and ensure that it is in working order.
4. Prepare schedules and coordinate with staff, client, and regulatory agencies, if appropriate.
5. Perform a general site survey prior to site entry in accordance with the site specific Health and Safety Plan.
6. Use stakes, flagging, or buoys to identify and mark all sampling locations. Specific site factors, including extent and nature of contaminant, should be considered when selecting sample location. If required, the proposed locations may be adjusted based on site access, property boundaries, and surface obstructions. All staked locations should be utility-cleared by the property owner or the On-Scene-Coordinator (OSC) prior to soil sampling; and utility clearance should always be confirmed before beginning work.

7.2 Sample Collection

7.2.1 Surface Soil Samples

Collection of samples from near-surface soil can be accomplished with tools such as spades, shovels, trowels, and scoops. Surface material is removed to the required depth and a stainless steel or plastic scoop is then used to collect the sample.

This method can be used in most soil types but is limited to sampling at or near the ground surface. Accurate, representative samples can be collected with this procedure depending on the care and precision demonstrated by the sample team member. A flat, pointed mason trowel to cut a block of the desired soil is helpful when undisturbed profiles are required. Tools plated with chrome or other materials should not be used. Plating is particularly common with garden implements such as potting trowels.

The following procedure is used to collect surface soil samples:

1. Carefully remove the top layer of soil or debris to the desired sample depth with a pre-cleaned spade.

2. Using a pre-cleaned, stainless steel scoop, plastic spoon, or trowel, remove and discard a thin layer of soil from the area which came in contact with the spade.

3. If volatile organic analysis is to be performed, transfer the sample directly into an appropriate, labeled sample container with a stainless steel lab spoon, or equivalent and secure the cap tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval or location into the homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.

7.2.2 Sampling at Depth with Augers and Thin Wall Tube Samplers

This system consists of an auger, or a thin-wall tube sampler, a series of extensions, and a "T" handle (Figure 1, Appendix A). The auger is used to bore a hole to a desired sampling depth, and is then withdrawn. The sample may be collected directly from the auger. If a core sample is to be collected, the auger tip is then replaced with a thin wall tube sampler. The system is then lowered down the borehole, and driven into the soil to the completion depth. The system is withdrawn and the core is collected from the thin wall tube sampler.

Several types of augers are available; these include: bucket type, continuous flight (screw), and post-hole augers. Bucket type augers are better for direct sample recovery because they provide a large volume of sample in a short time. When continuous flight augers are used, the sample can be collected directly from the flights. The continuous flight augers are satisfactory when a composite of the complete soil column is desired. Post-hole augers have limited utility for sample collection as they are designed to cut through fibrous, rooted, swampy soil and cannot be used below a depth of approximately three feet.

The following procedure is used for collecting soil samples with the auger:

1. Attach the auger bit to a drill rod extension, and attach the "T" handle to the drill rod.

2. Clear the area to be sampled of any surface debris (e.g., twigs, rocks, litter). It may be advisable to remove the first three to six inches of surface soil for an area approximately six inches in radius around the drilling location.

3. Begin augering, periodically removing and depositing accumulated soils onto a plastic sheet spread near the hole. This prevents accidental brushing of loose material back down the borehole when removing the auger or adding drill rods. It also facilitates refilling the hole, and avoids possible contamination of the surrounding area.

4. After reaching the desired depth, slowly and carefully remove the auger from the hole. When sampling directly from the auger, collect the sample after the auger is removed from the hole and proceed to Step 10.

5. Remove auger tip from the extension rods and replace with a pre-cleaned thin wall tube sampler. Install the proper cutting tip.

6. Carefully lower the tube sampler down the borehole. Gradually force the tube sampler into the soil. Do not scrape the borehole sides. Avoid hammering the rods as the vibrations may cause the boring walls to collapse.

7. Remove the tube sampler, and unscrew the drill rods.

8. Remove the cutting tip and the core from the device.

9. Discard the top of the core (approximately 1 inch), as this possibly represents material collected before penetration of the layer of concern. Place the remaining core into the appropriate labeled sample container. Sample homogenization is not required.

10. If volatile organic analysis is to be performed, transfer the sample into an appropriate, labeled sample container with a stainless steel lab spoon, or equivalent and secure the cap tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the homogenization container and mix thoroughly.

    When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.

11. If another sample is to be collected in the same hole, but at a greater depth, reattach the auger bit to the drill and assembly, and follow steps 3 through 11, making sure to decontaminate the auger and tube sampler between samples.

12. Abandon the hole according to applicable state regulations. Generally, shallow holes can simply be backfilled with the removed soil material.

7.2.3 Sampling with a Trier

The system consists of a trier, and a "T" handle. The auger is driven into the soil to be sampled and used to extract a core sample from the appropriate depth.

The following procedure is used to collect soil samples with a sampling trier:

1. Insert the trier (Figure 2, Appendix A) into the material to be sampled at a 0° to 45° angle from horizontal. This orientation minimizes the spillage of sample.

2. Rotate the trier once or twice to cut a core of material.

3. Slowly withdraw the trier, making sure that the slot is facing upward.

4. If volatile organic analyses are required, transfer the sample into an appropriate, labeled sample container with a stainless steel lab spoon, or equivalent and secure the cap tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.

7.2.4 Sampling at Depth with a Split Spoon (Barrel) Sampler

Split spoon sampling is generally used to collect undisturbed soil cores of 18 or 24 inches in length. A series of consecutive cores may be extracted with a split spoon sampler to give a complete soil column profile, or an auger may be used to drill down to the desired depth for sampling. The split spoon is then driven to its sampling depth through the bottom of the augured hole and the core extracted.

When split spoon sampling is performed to gain geologic information, all work should

be performed in accordance with ASTM D1586-98, "Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils".

The following procedures are used for collecting soil samples with a split spoon:

1. Assemble the sampler by aligning both sides of barrel and then screwing the drive shoe on the bottom and the head piece on top.

2. Place the sampler in a perpendicular position on the sample material.

3. Using a well ring, drive the tube. Do not drive past the bottom of the head piece or compression of the sample will result.

4. Record in the site logbook or on field data sheets the length of the tube used to penetrate the material being sampled, and the number of blows required to obtain this depth.

5. Withdraw the sampler, and open by unscrewing the bit and head and splitting the barrel. The amount of recovery and soil type should be recorded on the boring log. If a split sample is desired, a cleaned, stainless steel knife should be used to divide the tube contents in half, longitudinally. This sampler is typically available in 2 and 3 1/2 inch diameters. A larger barrel may be necessary to obtain the required sample volume.

6. Without disturbing the core, transfer it to appropriate labeled sample container(s) and seal tightly.

7.2.5 Test Pit/Trench Excavation

A backhoe can be used to remove sections of soil, when detailed examination of soil characteristics are required. This is probably the most expensive sampling method because of the relatively high cost of backhoe operation.

The following procedures are used for collecting soil samples from test pits or trenches:

1. Prior to any excavation with a backhoe, it is important to ensure that all sampling locations are clear of overhead and buried utilities.

2. Review the site specific Health & Safety plan and ensure that all safety precautions including appropriate monitoring equipment are installed as required.

3. Using the backhoe, excavate a trench approximately three feet wide and approximately one foot deep below the cleared sampling location. Place excavated soils on plastic sheets. Trenches greater than five feet deep must be sloped or protected by a shoring system, as required by OSHA regulations.

4. A shovel is used to remove a one to two inch layer of soil from the vertical face of the pit where sampling is to be done.

5. Samples are taken using a trowel, scoop, or coring device at the desired intervals. Be sure to scrape the vertical face at the point of sampling to remove any soil that may have fallen from above, and to expose fresh soil for sampling. In many instances, samples can be collected directly from the backhoe bucket.

6. If volatile organic analyses are required, transfer the sample into an appropriate, labeled sample container with a stainless steel lab spoon, or equivalent and secure the cap tightly. Place the remainder of the sample into a stainless steel, plastic, or other appropriate homogenization container, and mix thoroughly to obtain a homogenous sample representative of the entire sampling interval. Then, either place the sample into appropriate, labeled containers and secure the caps tightly; or, if composite samples are to be collected, place a sample from another sampling interval into the homogenization container and mix thoroughly. When compositing is complete, place the sample into appropriate, labeled containers and secure the caps tightly.

7. Abandon the pit or excavation according to applicable state regulations. Generally, shallow excavations can simply be backfilled with the removed soil material.

8.0 CALCULATIONS

This section is not applicable to this SOP.

9.0 QUALITY ASSURANCE/QUALITY CONTROL

There are no specific quality assurance (QA) activities which apply to the implementation of these procedures. However, the following QA procedures apply:

1. All data must be documented on field data sheets or within site logbooks.

2. All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration

activities must occur prior to sampling/operation, and they must be documented.

10.0 DATA VALIDATION

This section is not applicable to this SOP.

11.0 HEALTH AND SAFETY

When working with potentially hazardous materials, follow U.S. EPA, OHSA and corporate health and safety procedures, in addition to the procedures specified in the site specific Health & Safety Plan..

12.0 REFERENCES

Mason, B.J. 1983. Preparation of Soil Sampling Protocol: Technique and Strategies. EPA-600/4-83-020.

Barth, D.S. and B.J. Mason. 1984. Soil Sampling Quality Assurance User's Guide. EPA-600/4-84-043.

U.S. Environmental Protection Agency. 1984 Characterization of Hazardous Waste Sites - A Methods Manual: Volume II. Available Sampling Methods, Second Edition. EPA-600/4-84-076.

de Vera, E.R., B.P. Simmons, R.D. Stephen, and D.L. Storm. 1980. Samplers and Sampling Procedures for Hazardous Waste Streams. EPA-600/2-80-018.

ASTM D 1586-98, ASTM Committee on Standards, Philadelphia, PA.

APPENDIX A
Figures
SOP #2012
February 2000

FIGURE 1. Sampling Augers

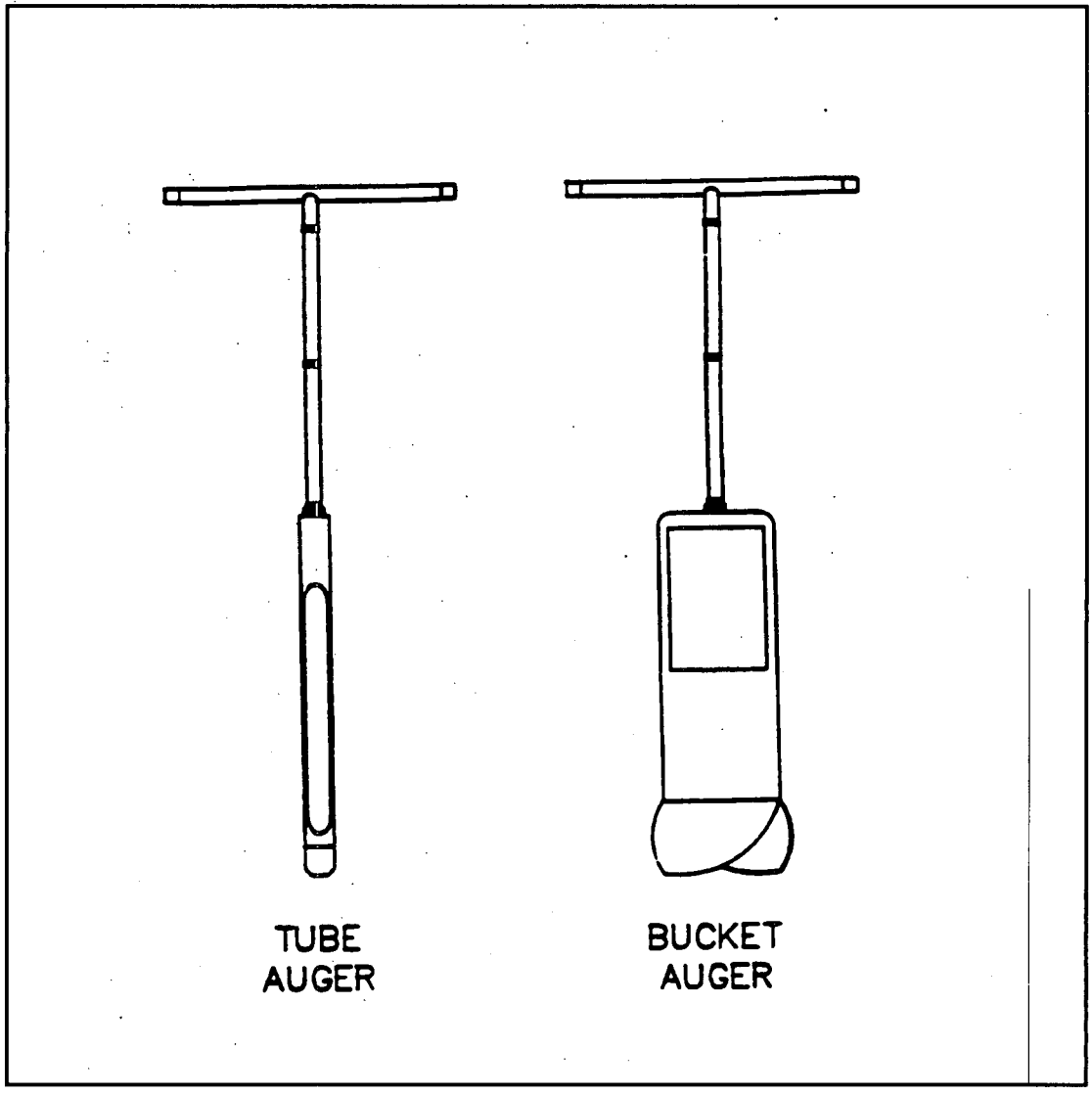
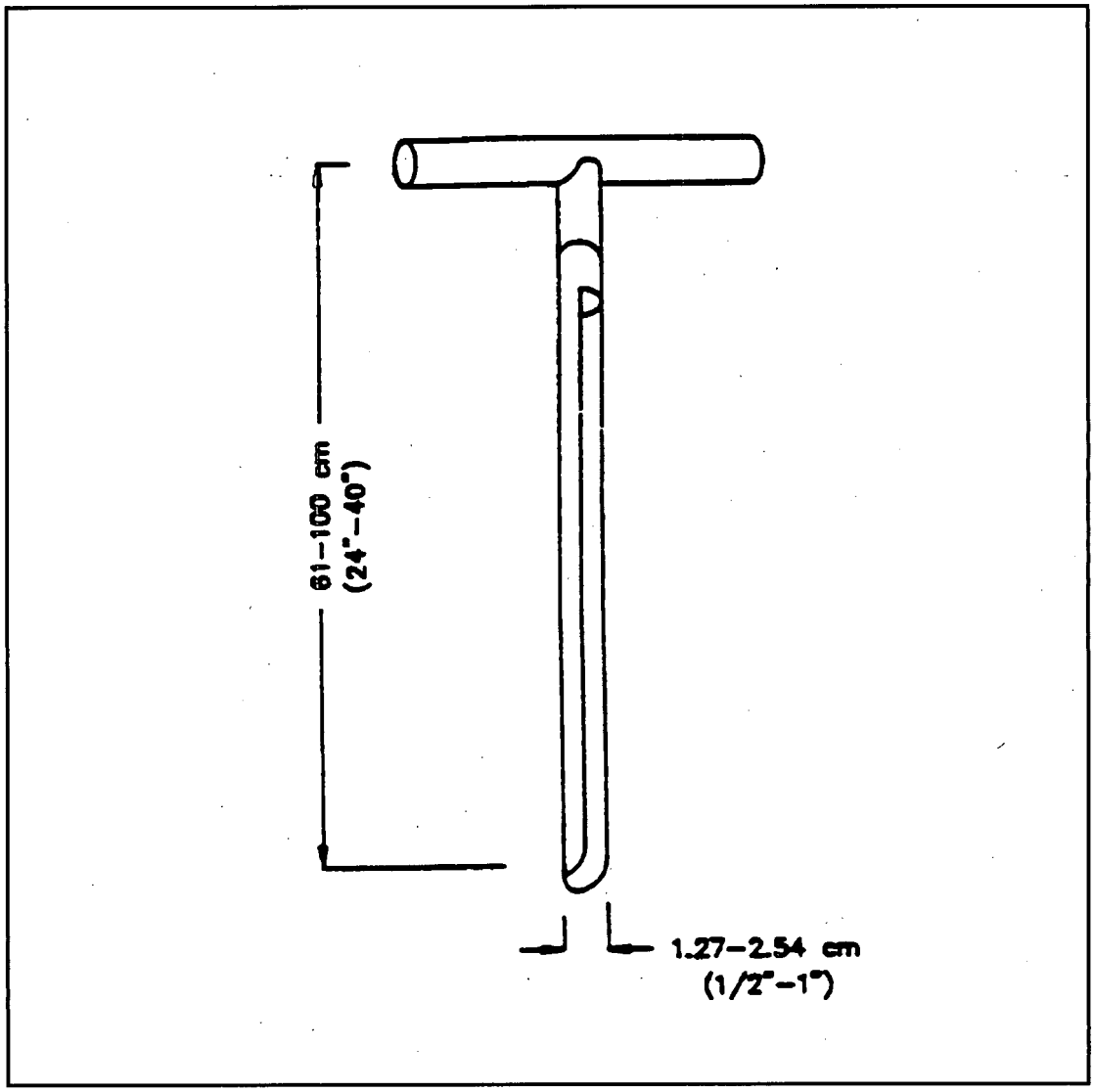


FIGURE 2. Sampling Trier



APPENDIX D:

INSTRUCTIONS FOR SAMPLE SHIPPING AND DOCUMENTATION

Castellana, Christina

Subject: FW: Instructions for Sample Shipping and Documentation

Attachments: FieldQCSummaryForm.XLS

FieldQCSummaryFo
m.XLS (16 KB)...

SHIPPING

For Shipments to the Region 9 Lab,

Upon shipment of samples, please notify the RSCC center at the Region 9 lab by phone (510-412-2389) and provide the following information:

Your name and call-back number Matrix
Case # Analyses
Site name Destination lab
coolers Shipping airbill
samples per cooler

Also, please indicate if more shipments are anticipated to be sent to this lab, or if the case is complete with this shipment. And finally, please include in the shipped cooler, instructions to the lab for return of the empty cooler (i.e., Fed EX return shipping label, your account number, etc.)

The address for the Region 9 Lab is :

USEPA Region 9 Laboratory
1337 South 46th Street, Building 201
Richmond, CA 94804

Attn: Sample Custodian
Phone: 510-412-2389

Friday Shipping:
If shipping Friday for Saturday delivery to the EPA Region 9 Laboratory, the sampler should ship samples by FEDEX with "HOLD Saturday at Fed Ex Location" checked on the airbill. For Recipients Name and Company use "Sample Custodian, US EPA Region 9 Laboratory", but use Fed Ex Emeryville address: 1600 - 63rd Street, Emeryville, CA 94608

For Shipments to the CLP Lab

Upon shipment of samples to the CLP lab(s), please notify the Region 9 RSCC center at 510-412-2389 or by email to David.Garey@dyncorp.com, with a copy to R9RSCC@epa.gov with the same categories of shipment information as requested for Region 9 lab shipments (above), and indicate if case is complete or continues. As requested for shipments to the Region 9 lab, for CLP shipments please also include in the shipped cooler, instructions for its return.

TRACKING

Attached to this email is a field QC Summary Form. It is used in data review and validation. Please complete this form as soon as possible after completing the sampling event, and send via email to Rose Fong, EPA Quality Assurance Office (fong.rose@epa.gov) with a cc to R9RSCC@epa.gov. Rose's phone number is (415) 972-3812, in case there are any questions.

Thank you for letting us help with your upcoming sampling event.

Mary

(See attached file: FieldQCSummaryForm.XLS)

****

Mary O'Donnell
Region 9 RSCC
EPA Region 9 Laboratory
Office: 510-412-2367
Fax: 510-412-2302
email: odonnell.mary@epa.gov

****

FIELD QA/QC SUMMARY FORM

Instructions: Complete one form per laboratory and per matrix for each sampling event.

Date: _____ Site: _____
Sampler: _____ Case#: _____
Office: _____ Laboratory: _____
Phone: _____

Matrix: (check one)
_____ Groundwater _____ Surface Soil _____ Air
_____ Surface Water _____ Subsurface Soil _____ Other

I. BLANKS

Sample #	Type (circle one)	Date Collected
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____
_____	Equip / Field / Travel	_____

II. BACKGROUND SAMPLES

Sample #	Date Collected
_____	_____
_____	_____
_____	_____
_____	_____

III. LAB QC SAMPLES

Sample #	Date Collected
_____	_____
_____	_____
_____	_____
_____	_____

IV. DUPLICATES

Sample #	Matches Sample #	Date Collected
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Type (circle one)
a / b / c / d a= composite split
a / b / c / d b= consecutive
a / b / c / d c= colocated
a / b / c / d d= soil sleeves
a / b / c / d
a / b / c / d
a / b / c / d
a / b / c / d

V. CHECKLIST OF FIELD PROBLEMS ENCOUNTERED

_____ None
_____ Pumping Equipment Problems
_____ Sample Filtering Problems
_____ Less Than Required Sample Volume
_____ Low Flow/Recharge Rates
_____ Preservation Problems
_____ Samples Not Shipped in 24 hrs.
_____ Federal Express Delay
_____ Other

Sample # / Date (s) of Occurence / Comments

_____
_____
_____
_____
_____
_____
_____

INSTRUCTIONS FOR

SAMPLE SHIPPING

AND DOCUMENTATION

November 1997

Quality Assurance Management Section
U. S. EPA Region 9
San Francisco, CA

TABLE OF CONTENTS

FIGURES

1.0 GENERAL

1.1 When all paperwork has been completed by the sampler and samples are ready to be shipped, place the laboratories' copies in a plastic bag and tape it to the inside of the lid of the cooler(s). For CLP Analytical Services, Contract Laboratory Analytical Services Support's (CLASS) copies must be submitted within 5 days of sampling. The Region's copies may be submitted at that time or at the end of the sampling event. If the sampling event covers an extended length of time, the Region's copies must be submitted weekly. (Note: The RSCC coordinator will not forward CLASS's copies. They will be returned to the sampler.)

QAMS address:

U.S. EPA Region 9
Quality Assurance Program (PMD-3)
75 Hawthorne Street
San Francisco, CA 94105
Attn.: RSCC Coordinator

CLASS address:

Contract Laboratory Analytical Services Support
DynCorp
2000 Edmund Halley Dr.
Reston, VA 20191-3436
Attn.: Region 9 Coordinator

1.2 For analyses performed by the Regional Laboratory, DO NOT send any copies of the paperwork to the Contract Laboratory Analytical Services Support (CLASS).

1.3 DISTRIBUTION OF COPIES

1.3.1 CLP ANALYTICAL SERVICES

1.3.1.1 ORGANIC TRAFFIC REPORT/CHAIN-OF-CUSTODY FORM

a. Blue (original) copy to QAMS, Region 9
b. Pink (second) copy to CLASS
c. White (third) and Yellow (fourth) copies accompany samples to laboratory
d. Photocopy for sampler's files

1.3.1.2 INORGANIC TRAFFIC REPORT/CHAIN-OF-CUSTODY FORM

a. Green (original) copy to QAMS, Region 9
b. Pink (second) copy to CLASS
c. White (third) and Yellow (fourth) copies accompany samples to laboratory
d. Photocopy for sampler's files

1.3.2 REGIONAL ANALYTICAL PROGRAM (RAP):

1.3.2.1 RAP CHAIN-OF-CUSTODY FORM

a. White (original) copy to laboratory with samples
b. Pink copy to QAMS, Region 9
c. Photocopy for sampler's file

1.3.3 FIELD QA/QC SUMMARY FORM

a. Original to QAMS, Region 9
b. Photocopy for sampler's files

2.0 SAMPLE SHIPMENTS

2.1 Calling in shipments to the RSCC coordinator

2.1.1 Call the EPA Regional Sample Control Center (RSCC) coordinator on a daily basis, even if no shipments were made. The RSCC coordinator may be reached at (415) 744-1498.

2.1.2 Try to stick to the sampling schedule. If this is not possible, let the RSCC coordinator know immediately so other arrangements can be made.

2.1.3 Notify the RSCC coordinator within 12 hours of sample shipments. Calling in sample shipments to the RSCC coordinator is MANDATORY. Provide the following information to the RSCC coordinator:

1. Case number
2. Name of Laboratory
3. Date of shipment
4. Carrier and airbill number
5. Number of samples shipped by matrix and analysis type
6. Number of coolers shipped
7. Information on completions, changes, delays, etc.

2.2 Special shipments (i.e., Saturday delivery/pickup)

2.2.1 General - Friday shipments for Saturday delivery/pickup must be called in by noon (12:00 pm) Friday. This is to enable the RSCC coordinator to pass the information on to CLASS or to the laboratories. Samplers may not contact the laboratories directly. (Laboratories do not have to accept notification of delivery of samples from sources other than CLASS or RSCC.)

2.2.2 Regional Laboratory - The Regional Laboratory is located within a gated compound that is closed on weekends and holidays. Designated laboratory personnel will pickup the samples at the Federal Express office, take them to the laboratory and place them inside the refrigerators. If the following shipping instructions are not followed, an

unsuccessful delivery attempt will be made to the Regional Laboratory. In addition, the staff member on call will not be able to pickup the samples, since they will not be at the Federal Express office.

To ensure that samples are held at the Federal Express office, please be sure to complete the following items:

1. On the lower left side of the Federal Express airbill, "For HOLD at FedEx Location check here," mark the box for "Hold Saturday."

2. In Section 3 of the airbill, print the following Federal Express office address:

   1600 63rd Street
   Emeryville, CA 94608

Federal Express may affix stickers to the coolers. Be sure they read "SATURDAY FEDERAL EXPRESS CENTER HOLD" or something similar. Under no circumstances should a "SATURDAY DELIVERY" sticker be placed on the cooler.

If a carrier other than Federal Express is used, please call the RSCC coordinator (415-744-1498) to make special arrangements.

2.2.3 Most CLP laboratories and other commercial laboratories contracted by QAP are staffed on Saturdays. Therefore, coolers can be delivered directly to these laboratories. In this case, the "SATURDAY DELIVERY" sticker should be placed on the cooler.

2.2.4 Laboratories may request advance notification of the arrival of certain types of samples, such as samples with very short holding times (e.g., Cr +6) that will be hand delivered to the laboratory. Required deadlines for notification of sample shipments in these special cases will be determined on a case by case basis. The RSCC coordinator will inform the samplers as to when notification of sample delivery is required (e.g., by noon on the day samples will be delivered). This is to facilitate the laboratory(ies) having personnel available to analyze the samples as soon as they arrive.

2.3 Cooler Return

Samplers are responsible for providing laboratories with a means to return coolers to their place of origin. The easiest way is to enclose an airbill with return shipping instructions (i.e., the address filled in as to where the coolers are to be returned to) and an account number to charge shipping costs to.

Samplers using EMFAC coolers should refer to Section 7 of the

EMFAC Users Guide for cooler return instructions. EPA contractors should contact their EPA Project Officer for details on acceptable modes of cooler return and shipping cost reimbursement.

3.0 CLP ANALYTICAL SERVICES (CLPAS) TRAFFIC REPORT/CHAIN-OF-CUSTODY FORMS FOR ORGANIC AND INORGANIC ANALYSES

3.1 CASE DOCUMENTATION

Complete this form when collecting CLPAS samples. See Attachments 1 through 3 for examples.

Enter the CLPAS case number in the box(es) located in the upper right corner of the form. CLPAS case numbers have the format "xxxxx" (e.g., 18123).

3.2 HEADER INFORMATION

3.2.1 Box 1 - PROJECT CODE/SITE INFORMATION

Enter the Project Code (i.e., $F), Site Name, City, State, Site Spill ID. (Note: the information entered here does not go through to the laboratory's copies.)

If sampling is not under the Superfund program, enter the Account code (account to be billed), any Regional Information and the name of the program (e.g., RCRA) in the box titled "Non-Superfund program."

3.2.2 Box 2 - REGIONAL INFORMATION

Enter the Region number, the name of your sampling company, and your name and signature in the designated spaces.

3.2.3 Box 3 - TYPE OF ACTIVITY

Check the appropriate box(es) for the type of activity for this sampling event. See Appendix A for acronym definitions.

3.2.4 Box 4 - SHIPPING INFORMATION

Enter the date shipped, the carrier (e.g., Federal Express, Airbourne, etc.) and the air bill number in the appropriate spaces.

3.2.5 Box 5 - SHIP TO

Enter the laboratory name, full address and laboratory contact (e.g., Sample Custodian).

3.2.6 Box 6 - PRESERVATIVE

This box provides a list of commonly used preservatives. Enter the appropriate preservative in Column D. If you enter "5" on the Organic Traffic Report or "7" on the Inorganic Traffic Report indicating "Other", specify the preservative used at the bottom of the "Sample Documentation" area.

If you are using more than one type of preservative, you may either note the preservatives in the box specifically under the requested analyses (e.g., in the Cyanide box enter "2") or list them, separated by commas, in the same order as the checked sample analyses. (Alternatively, the analyses may be listed on separate lines.)

3.2.7 Box 7 - SAMPLE DESCRIPTION

This box provides a list of the description/matrices of the samples that are collected. Enter the appropriate description in Column A.

3.3 SAMPLE DOCUMENTATION

3.3.1 SAMPLE NUMBERS

Carefully transcribe the CLPAS sample numbers from the printed labels onto the Organic or Inorganic Traffic Report/Chain-of-Custody forms in the column labeled "CLP Sample Numbers".

CLPAS sample numbers have the following formats: YX123 for organic and MYX123 for inorganic samples. See Appendix B for examples.

3.3.2 Column A - SAMPLE DESCRIPTION

Enter the appropriate sample description code from Box 7.

Note: Item #6 "Oil" and Item #7 "Waste" are for RAP projects only. Do not ship oily samples or waste samples without making prior arrangements with the EPA.

3.3.3 Column B - CONCENTRATION

Enter "L" for low and "M" for medium concentration samples. (Prior arrangements must have been made with the ESAT RSCC coordinator, CLASS and the laboratories accepting the samples before shipping medium concentration samples. At this time, high concentration samples must be scheduled through the RAP system.)

NOTE: Medium concentration samples must be shipped in metal cans.

3.3.4 Column C - SAMPLE TYPE COMPOSITE/GRAB

Enter the type of sample you collected. A composite is a sample composed of more than one discrete sample. A grab is a discrete sample.

3.3.5 Column D - PRESERVATIVE USED

Enter the preservative used from Box 6.

3.3.6 Column E - CLPAS ANALYSIS

Check the analytical fractions requested for each sample, for example, VOAs, BNAs and Pesticides/PCBs are for low/medium concentration organics. Total metals and cyanide are for low/medium concentration inorganics.

NOTE: If dissolved metals are requested, a note must be added indicating that the samples have been field filtered and that digestion is required. See Attachment 2 for an example.

3.3.7 Column F - REGIONAL SPECIFIC TRACKING NUMBERS OR TAG NUMBERS

Region 9 does not issue tracking numbers or tag numbers. Samplers may use this column for sampler specific tracking numbers or for "Special Instructions". If you choose to use this as "Special Instructions", be sure to note, at the bottom of the "Sample Documentation" area, what the special handling is. The number and type of containers could be entered here. (e.g., 3-40 mL, 6-1L)

3.3.8 Column G - STATION LOCATION NUMBER

Enter the station location in the space provided.

3.3.9 Column H - MO/DAY/YEAR/TIME OF SAMPLE COLLECTION

Record the month, day, year and time (use military time, e.g., 1600 = 4:00 pm) of sample collection.

3.3.10 Column I - SAMPLER INITIALS

Enter your initials.

3.3.11 Column J - CORRESPONDING CLP ORGANIC/INORGANIC SAMPLE NUMBER

Enter the corresponding CLP sample number for organic or inorganic CLPAS analysis.

3.3.12 Column K - DESIGNATED FIELD QC

NOTE: This column is NOT to be used for the designated laboratory QC samples. Information entered here is not reproduced onto the laboratories' copies.

Enter the appropriate qualifier as listed below for "Blind" Field QC samples in this column. (NOTE: All samples must have a qualifier.)

Blind Field QC	Qualifier
Blind Blanks (field, etc.)	B
Blind Field Duplicates	D
Blind Field Spikes	S
Blind PE Samples	PE
All other field samples	--

"B" = These are blanks and include trip blanks (T), field blanks (F) and equipment blanks (E). Blanks may be further identified by the letter in parenthesis. For example, B(T) indicates that the sample is a trip blank.

"D" = These are field duplicates. Do not include samples designated as laboratory duplicates. The primary sample is identified with "--" and the duplicate is given "D" in column K. In addition, the station locations should also identify the primary and duplicate samples. For example, MW-1 is the primary sample and MW-1B is the duplicate sample.

"S" = These are spiked field samples and are generated by field personnel

"PE" = These are performance evaluation samples. They are spiked samples but are not field samples. They are usually prepared by other than field personnel.

"--" = All other samples not designated as blind field QC samples are given this qualifier.

3.4 "SHIPMENT FOR CASE COMPLETE (Y/N)"

This should reflect the status of the samples scheduled to be shipped to a laboratory for a specific case. Only when ALL samples scheduled for shipment to a laboratory for a specific case have been shipped is the case complete.

3.5 "PAGE 1 OF ____"

Enter the number of Traffic Report/Chain-of-Custody Record form(s) enclosed in each cooler. The form(s) accompanying each cooler must list only those samples contained in that cooler.

3.6 "SAMPLE USED FOR SPIKE AND/OR DUPLICATE"

Enter the sample number of the sample designated for laboratory spike and/or duplicate analysis. This is also known as the Laboratory QC sample. This sample should be included in the first shipment to the laboratory and in the first shipment for each subsequent sample delivery group (SDG).

DO NOT enter samples designated as blind field duplicates in this block.

3.7 "ADDITIONAL SAMPLER SIGNATURES"

Record additional sampler signatures that are different from that in Box 2.

3.8 "CHAIN OF CUSTODY SEAL NUMBER"

Enter the Chain of Custody Seal Number used to seal the cooler, if applicable.

3.9 Instructions summarizing CLP sample volumes, packaging and shipment reporting requirements are printed on the back of the Traffic Reports.

4.0 REGIONAL ANALYTICAL PROGRAM (RAP) CHAIN-OF-CUSTODY FORMS

4.1 CASE DOCUMENTATION

Complete this form when collecting RAP samples. See Attachment 4 for an example.

4.1.1 PROJECT NUMBER

Enter the RAP case number in this box.

4.1.2 PROJECT NAME

Leave this space blank.

4.1.3 SAMPLERS (Signature)

Record all sampler signatures in this box.

4.2 SAMPLE DOCUMENTATION

4.2.1 SAMPLE NUMBERS

No sample numbers are provided. Samplers should designate their own numbers and enter them in the space labeled STA.NO.

4.2.2 DATE

Enter the month, day and year the sample was collected in the "DATE" column.

4.2.3 TIME

Enter the time (using military time) in the "TIME" column.

4.2.4 COMP/GRAB

Check the kind of sample collected in the composite or grab column.

4.2.5 STATION LOCATION

Enter the sample site location in the space provided.

4.2.6 SAMPLE MATRIX

For each sample, enter the appropriate sample matrix description in the right third portion of the "STATION LOCATION" column.

4.2.7 NO. OF CONTAINERS

Enter the total number of sample containers collected for each matrix at each station location.

4.2.8 SAMPLE ANALYSES

There are six slanted columns to be used to specify the kind of analysis to be performed by the laboratory. Enter the appropriate analysis in each column. Mark the box of the appropriate analysis for each sample collected.

4.2.9 REMARKS

The items listed below are to be included in this area on the appropriate sample line.

4.2.9.1 CONCENTRATION

Enter "L" for low concentration, "M" for medium concentration and "H" for high concentration.

NOTE: Medium and high concentration samples must be shipped in metal cans.

4.2.9.2 PRESERVATIVE USED

Enter the preservative used.

If more than one type of preservative is used for a sample, separate the preservative references with commas. The sequence of the reference numbers must follow the sequence of the requested "SAP Analysis" parameters that are recorded in the analysis columns.

4.2.9.3 SAMPLE USED FOR SPIKE AND/OR DUPLICATE

Enter the sample number designated for spike and/or duplicate analysis. This is also known as the Laboratory QC sample. This sample should be included in the first shipment to the laboratory and in the first shipment for each subsequent sample delivery group (SDG).

4.3 AIRBILL NUMBER

The airbill number should be entered on the first signature line, in the box marked "Received by: (Signature)".

4.4 "REMARKS" BOX

Located in the lower right hand corner of the Chain of Custody is a box labeled "Remarks". The following items should be entered there.

4.4.1 CHAIN OF CUSTODY SEAL NUMBER

Enter the Chain of Custody Seal Number used to seal the coolers, if applicable, in the box labeled "Remarks", in the lower right-hand corner.

4.4.2 LABORATORY NAME

Enter the Laboratory name in the box labeled "Remarks", in the lower right-hand corner.

4.4.3 SHIPPING COMPLETE?

Enter "yes, shipping is complete" or "No, shipping is not complete" in the box labeled "Remarks", in the lower right-hand corner.

4.4.4 CARRIER

Enter the carrier (e.g., "Fed Ex") in the box labeled "Remarks", in the lower right-hand corner.

5.0 SAMPLE BOTTLES

5.1 Sample bottles be labeled with the following information:

a. Case number
b. Date/Time of collection
c. Matrix/Concentration
d. Station Location
e. Sample number (CLP or sampler designated)
f. Analysis
g. Preservative

5.2 Pre-printed, self-adhesive labels are provided for CLPAS Organic, CLPAS Inorganic and RAP samples.

5.2.1 Transcribe the appropriate sample number onto the corresponding bottle label and/or affix the sample number label onto the bottle.

5.2.2 Destroy all unused labels or return them to the ESAT RSCC coordinator. DO NOT use them for future samplings. New sample numbers will be assigned.

6.0 FIELD QA/QC SUMMARY FORM

6.1 Complete one form per laboratory per matrix for each sampling event. For long term projects, complete a form(s) after each week of sampling. Complete the header portion even if no QA/QC samples were provided.

6.2 Complete all applicable entries. Please use the appropriate sample numbers for each laboratory. (e.g., for the laboratory performing CLPAS organics, use the CLP organic sample numbers, YX123, etc. For the laboratory performing RAP analyses, use the RAP sample numbers, SY0123, etc.) Please do not use station locations. If a laboratory is performing more than one type of analysis, list all applicable sample numbers.

6.3 This form is very important for validation purposes. The validators will compare the results of duplicates and assess the quality of blanks, if they know which samples they are. Failure to provide this information will delay the completion of validation.

TYPE OF ACTIVITY

Check the box which describes the funding lead for this sampling event:

Funding Lead

SF = Superfund
PRP = Potentially Responsible Party
ST = State
FED = Federal

Check one or more boxes, as appropriate, which describe the task of this sampling event:

Pre-Remedial

PA = Preliminary Assessment
SSI = Screening Site Investigation
LSI = Listing Site Investigation

Remedial

RIFS = Remedial Investigation Feasibility Study
RD = Remedial Design
O&M = Operations and Maintenance
NPLD = National Priorities List

Removal

CLEM = Classic Emergency
[illegible] = Removal Assessment
[illegible] = Removal
[illegible] = Oil Response
UST = Underground Storage Tank Response

Appendix B

CLP SAMPLE NUMBERS

Each sample is assigned a unique sample number. A "sample" is defined as follows:

- one matrix, e.g., water, soil/sediment, fish, etc.
- one station location
- one analytical program, e.g., CLPAS organics, CLPAS-inorganics or a RAP analysis
- one laboratory

Sample numbers for CLPAS analyses:

- CLPAS Organic sample numbers consist of five alpha-numerics, always beginning with "Y" .

  Example - YJ386

- CLPAS Inorganic sample numbers consist of six alpha-numerics, always beginning with "MY"

  Example - MYG528

Examples for assigning sample numbers:

- CLPAS Volatiles & CLPAS Pesticides/PCBs receive the **SAME SAMPLE NUMBER**, if the samples are:
  - the same matrix
  - part of the same analytical program, e.g., CLPAS organics
  - from the same station location
  - going to the same laboratory

- CLPAS Volatiles & CLPAS Pesticides/PCBs receive **DIFFERENT SAMPLE NUMBERS**, if the samples are:
  - the same matrix
  - part of the same analytical program, e.g., CLPAS organics
  - from the same station location
  - going to different laboratories

- CLPAS Volatiles & CLPAS Metals receive **DIFFERENT SAMPLE NUMBERS**, if the samples are:
  - the same matrix
  - part of different analytical programs, e.g., CLPAS organics & CLPAS inorganics
  - from the same station location
  - going to the same laboratory

EPA Organic Traffic Report & Chain of Custody Record

United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

(For Organic CLP Analysis)

11233

1. Project Code: SF	Account Code:	2. Region No.: 9	Sampling Co.: [illegible]	4. Date Shipped: 1-7-94
				Carrier: Fed. Express
Regional Information:		Sampler (Name): Gail Jones		Airbill Number: 0912345678
Non-Superfund Program:		Sampler Signature: Gail Jones		5. Ship To: Alpha Lab, 123 Pine Ave, NY, NY 10001, ATTN: John Doe
Site Name: Toxic Dump		3. Type of Activity: SF [X] PRP [ ] ST [ ] FED [ ]; Remedial: RIFS [X] RD [ ] RA [ ] OSM [ ] NPLD [ ]; Removal: CLEM [ ] REMA [ ] REM [ ] OIL [ ] UST [ ]; Pre-Remedial: PA [ ] SSI [ ] LSI [ ]		
City, State: Smallville CA	Site Spill ID: 99			

6. Preservative (Enter in Column D): 1. HCl 2. HNO_3 3. $NaHSO_4$ 4. H_2SO_4 5. Other (Specify) 6. Ice only N. Not preserved

7. Sample Description (Enter in Column A): 1. Surface Water 2. Ground Water 3. Leachate 4. Rinsate 5. Soil/Sediment 6. Oil (High only) 7. Waste (High only) 8. Other (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp./ Grab	D Preservative from Box 6	E RAS Analysis: VOA	BNA	Pest/ PCB	High only APO/ TOX	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Inorg. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (S = Blank, S = Spike, D = Duplicate, PE = Performance Eval., — = Not a QC Sample)
YJ126	2	L	G			X				MW-1	1-6-94 0900	gf	MVG00X	—
YJ127	2	L	G			X				MW-2	1-6-94 1000	gf	MVG003	—
YJ128	2	L	G			X				MW-3	1-6-94 1100	gf	MVG005	—

Shipment for Case complete? (Y/N): Y

Page 1 of 1

Sample used for a spike and/or duplicate: YJ127

Additional Sampler Signatures:

Chain of Custody Seal Number:

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Gail Jones	1-7-94 1600	0912345678
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)

Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Date / Time	Remarks: Is custody seal intact? Y/N/none	

Split Samples: [ ] Accepted (Signature) [ ] Declined

EPA Form 9110-2 (Rev. 6-91) Replaces EPA Form (2075-7), previous edition which may be used

EPA United States Environmental Protection Agency
Contract Laboratory Program Sample Management Office
PO Box 818 Alexandria, VA 22313
703-557-2490 FTS 557-2490

Organic Traffic Report & Chain of Custody Record
(For Inorganic CLP Analysis)

SAS No. (if applicable)

Case No. 17235

1. Project Code $F | Account Code | 2. Region No. 9 | Sampling Co. ACE

Regional Information

Sampler (Name) Gail Jones

Sampler Signature Gail Jones

Non-Superfund Program

Site Name Toxic Dump

City, State Smallville CA | Site Spill ID 99

Type of Activity: SF [X] PRP [ ] ST [ ] FED [ ] | Land [X] | Pre-Remedial: PA [ ] SSI [ ] LSI [ ] | Remedial: RIFS [X] RD [ ] RA [ ] O&M [ ] NPLD [ ] | Removal: CLEM [ ] REMA [ ] REM [ ] OIL [ ] UST [ ]

4. Date Shipped 1-7-94 | Carrier Fed. Express

Airbill Number 091234569 9

5. Ship To Beta Labs, Inc.
465 Maple Ave.
Atlanta, GA 04507

ATTN: Mary Smith

6. Preservative (Enter in Column D)
1. HCl
2. HNO_3
3. NaOH
4. H_2SO_4
5. $K_2CR_2O_7$
6. Ice only
7. Other (Specify)
N. Not preserved

7. Sample Description (Enter in Column A)
1. Surface Water
2. Ground Water
3. Leachate
4. Rinsate
5. Soil/Sediment
6. Oil (High only)
7. Waste (High only)
8. Other (Specify)

CLP Sample Numbers (from labels)	A Enter # from Box 7	B Conc. Low Med High	C Sample Type: Comp/ Grab	D Preservative from Box 6	E. RAS Analysis: Metals Total	Metals Dissolved	Metals Cyanide	Low Conc. only Nonvol/ Hems	Low Conc. only Purge	High only pH	High only Conc/ Dilut	F Regional Specific Tracking Number or Tag Numbers	G Station Location Number	H Mo/Day/ Year/Time Sample Collection	I Sampler Initials	J Corresp. CLP Org. Samp. No.	K Enter Appropriate Qualifier for Designated Field QC (B = Blank S = Spike D = Duplicate PE = Perform. Eval. — = Not a QC Sample)
MVG001	2	L	G	2	X		X						MW-1	1-6-94 0900	JB	YJ126	—
MVG002	2	L	G	2		X						A	MW-1	1-6-94 0915	JB	YJ126	—
MVG003	2	L	G	2	X		X						MW-2	1-6-94 1000	JB	YJ127	—
MVG004	2	L	G	2		X						A	MW-2	1-6-94 1015	JB	YJ127	—

A = Field Filtered, 0.45 micron
Digestion required for all dissolved samples

Shipment for Case complete? (Y/N) Y | Page 1 of 1 | Sample used for a spike and/or duplicate MVG003 + MVG004 | Additional Sampler Signatures John Brown | Chain of Custody Seal Number

CHAIN OF CUSTODY RECORD

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Gail Jones	1-7-94 1600	091234569 9			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks Is custody seal intact? Y/N/none	

Split Samples ☐ Accepted (Signature)

ATTACHMENT 2

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

REGION 9
75 Hawthorne Street
San Francisco, California 94105

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
R94S12	

SAMPLERS: (Signature)
K. Petit

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	MATRIX	NO. OF CONTAINERS	Low Level VOA	Sulfide	Nitrate/Nitrite				REMARKS
SyD000	7/21/94	1000		✓	FRONT - MW	GW	4	X	X	X				VOA'S PRESERVED W/ HCl
SyD001	7/21/94	1030		✓	BACK - MW	GW	4	X	X	X				SULFIDE PRESERVED W/ NaOH + Zn Acetate
SyD002	7/21/94	1300		✓	EAST - MW	GW	4	X	X	X				LABQC
SyD003	7/21/94	1320	✓		EAST - S	SOIL	1			X				LABQC
														ALL SOIL AND GW SAMPLES ARE LOW CONCENTRATION

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
K. Petit	7/22/94 1600	1234567890			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks: LAB: REGION 9 SHIPPING IS COMPLETE CARRIER: FED EX, 7/22/94 CUSTODY SEAL #: 12345	

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files